

JULY 1922

NO. 198

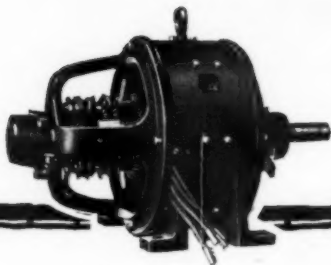
Monthly

A Reference for Buyers

**HITCHCOCK'S  
MACHINE  
TOOL LIST**

Distributed Free to Machine Tool  
Users Everywhere in the United States and to  
Dealers in American Machinery Abroad

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago



## Try a Type T Reliance Motor on a tough job

That's what they are built for. They are made to stand hard usage and to stand it longer than the ordinary motor. More and better material is put into vital parts. Coils are carefully insulated, shafts and bearings are large, end brackets are heavy. Commutators include special details that mean longer life.

Type T motors in installations of 1 to 300 have been making good for over five years doing hard jobs in steel mills, and metal working shops.

Let us send Bulletin 2014 which shows why these motors will do more than meet ordinary needs.

**Reliance Electric & Engineering Co.**  
1050 Ivanhoe Road, Cleveland, O.

*Branches:*

BOSTON, NEW YORK, PHILADELPHIA, PITTSBURGH,  
CINCINNATI, DETROIT, CHICAGO

*We specialize in motors, sizes 1/2 to 150 h. p., constant and adjustable speed D. C.; squirrel cage and slip ring A. C.*

*Type* **T** Heavy Duty  
**RELIANCE MOTORS**  
*Direct Current*

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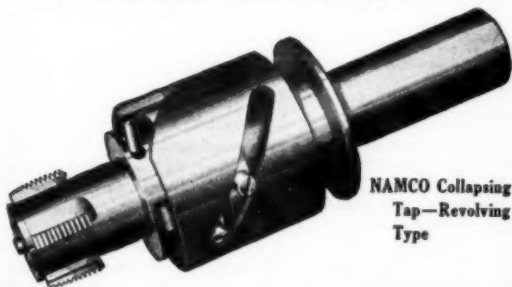
# ONE OF SEVERAL NAMCO THREADING TOOLS

Built in Revolving and Non-Revolving Types

Automatic Collapsing Taps,  
Capacities up to 7-1/8"

Self-opening Dies,  
Capacities up to 4-1/2"

Up-to-the-minute tools ready for your work.



NAMCO Collapsing  
Tap—Revolving  
Type

*Send for catalog*

**THE NATIONAL ACME CO.**  
CLEVELAND, OHIO

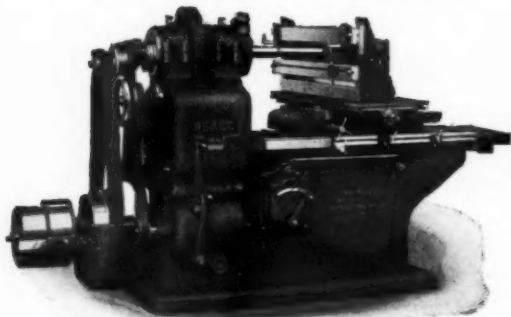
NEW YORK    BOSTON    CHICAGO    DETROIT    BUFFALO

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# A New HEALD Cylinder Grinder



Style No. 50 with Heald Universal Jig Will Handle All Sizes and Styles of Blocs

The HEALD Style No. 50 Cylinder Grinder is an ideal machine for both the manufacturer and the repair shop. It is unusually massive, simple to operate, and has an hydraulic drive for the table instantly giving any speed desired, enabling the operator to get an unusually fine finish. With this drive it is possible to reverse the table at any desired point without shock or noise.

Whether you are a manufacturer or expect to go into the regrounding business, you should look into its advantages at once.

**THE HEALD MACHINE CO.**  
6 New Bond St.,      WORCESTER, MASS.

---

**CANEDY OTTO**

## Equipment

—meets the need for the highest quality equipment at prices which makes the work done on these machines not only completely satisfactory, but highly profitable, as well. Every C-O item backed by 50 years of experience.

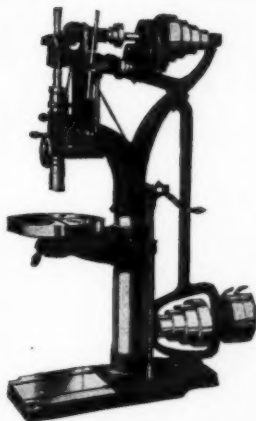
*Send for complete catalog*

### Canedy-Otto Mfg. Co.

Manufacturers of Automotive Equipment, Drills, Punches, Shears, Shrinkers, Countershafts, Grinders, Buffers, Forges, Blowers, Tuyere Irons, Blast Gates.

*Main Office and Factory*  
**Chicago Heights, Illinois**

**New York Office, Grand Central Palace**



**C-O 20-INCH DRILL**—No other drill of this size gives you 12" spindle travel, a decided advantage in cylinder boring. Bores to center of 21" circle.

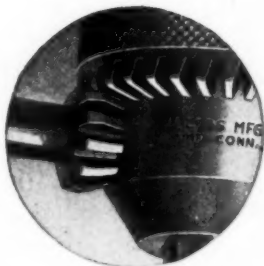


**C-O NO. 3 GRINDER**—Furnished with tight pulley or tight and loose pulley, and rests. All C-O Grinders are designed for ready attachment of guards.



**C-O NO. 1 ARBOR PRESS**—Capacity, 3 tons; diameter of work, 14"; capacity of table, 11"

# Try a Jacobs Super Chuck



**Its Gripping Power** is such that only a *slight pressure* is required on the key for the heaviest drilling. For ordinary drilling and tool work the chuck may be tightened by hand without using the key.

Try just one **SUPER CHUCK** today.

See your dealer or write us for catalogue A-17, which shows and describes our complete line.

**The Jacobs Manufacturing Co.**

2074 Park Road

Hartford, Connecticut

# More Drilling for Your Money

## With the Improved AURORA Drill

For the same amount of invested cash or less, you obtain a great deal more in the way of daily output with the fast "Aurora."

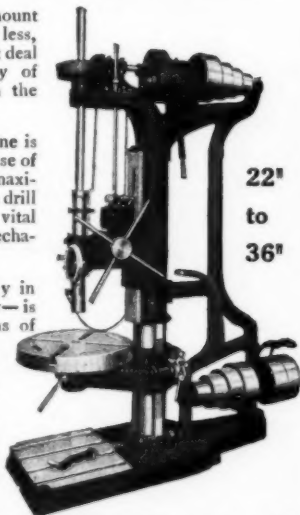
The whole machine is built for the purpose of delivering the maximum power at the drill point—the most vital spot in drilling mechanism.

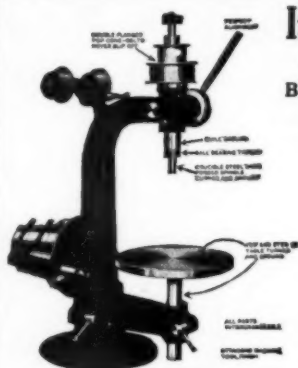
This superiority in power—efficiency—is achieved by means of the unusually large pulley diameter and the consequent ratio of gearing. After exhaustive tests, drilling experts have pronounced the "Aurora" unsurpassed in practical drilling efficiency. The feed box control is right in front of operator.

Other *exclusive* features: Patent tapping attachment; Fool-proof table; Automatic release worm wheel; Enclosed positive gears.

*An investigation will well repay you—make it now*

**THE AURORA TOOL WORKS**  
**Aurora, Indiana, U. S. A.**





**No. 1 Ten Inch Sensitive  
Bench Drill Press**

## It's a Burke

The most used  
Bench Drill Press  
in the world

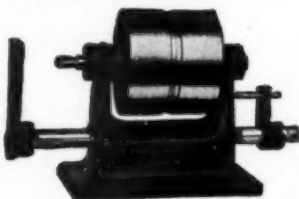
*The Reason:—*

**Burke  
Quality**

### PRICES:

Without swing- ing arm.....	\$22
With swinging arm.....	\$26
Motor Driven .....	\$55 to \$60

## THE BURKE Friction Driven Tapping Machines



**Eliminate all  
shock to the  
tap and save  
95% of your  
tap breakage**

The most efficient machines made for work within their capacity. They are complete in themselves, yet cost less than the average tapping attachment.

*Send us samples or drawings of your tapping  
jobs and let us give you production estimate*

**The Burke Machine Tool Co.**  
297 East 16th St., Conneaut, Ohio



**Watch The Corners  
Dollars Saved—Dollars Made**

**Squeeze Your \$ Of Cost**

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Get An *Avey* Get all the Profit

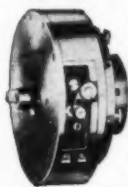
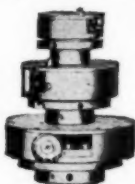
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Drive To The Limit  
Double Production—Half the Labor

**The Avey Drilling Machine Co.**  
Cincinnati, Ohio

## Write For Folder—

Illustrating Many of Their Time-saving Uses



THE FOLDER shows them at work on boring mills, milling machines, lathes and drill presses. Made in 6" to 24" sizes with one-way and two-way feeds. Convenient tool adjustment; quick feed reverse; real wonders for results. Write today for the illustrated folder.

**MUMMERT-DIXON CO., Hanover, Pa.**

## *Thor* Portable Electric Drills

**For Drilling, Reaming, Wood Boring  
and Screw Driving**

*New 16-Page Book Showing Complete Line Free*

Jacobs  
Chucks  
Regular  
Equipment

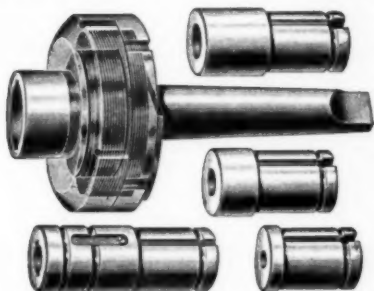


*Agents Wanted*

**Independent Pneumatic  
Tool Company**

**600 West Jackson Blvd., CHICAGO**  
Offices and Agents Everywhere

# Use SAFETY Tap Holders and SAVE Tools, Time, Labor



*"they prevent the breaking of your drills and taps"*

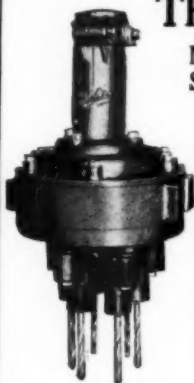
**T**HE SAFETY Friction Driven Tap Holder puts within easy reach of every shop a really worth while economy. Tap breakage is *prevented*, and this means you save not only the cost of new taps, but also cut out the expense of labor involved in removing broken ones and the consequent delay of the job in hand.

The SAFETY permits tapping to the bottom, and enables you to change from drilling to tapping and vice versa without stopping spindle. In case of any undue strain, the Holder will instantly stop, while spindle continues revolving. This eliminates all tap breakage.

The SAFETY is regularly made in four sizes, 0 to 2½", but can be furnished with special sockets with friction set to carry one or two sizes of taps, which are especially useful where sizes are constantly changing.

*Seeing is believing—try one out on your toughest tapping job—be convinced—and profit accordingly*

**The Beaman & Smith Co.**  
**PROVIDENCE, RHODE ISLAND**



## The Buhr—

### Makes a Multiple of Your Single Spindle Drill Press

*Adjustable Spindle Drill Heads*  
with 2 to 12 spindles, on which set-  
ups are easily made for circular, rec-  
tangular or staggered positions.

*Fixed Spindle Heads*, bronze or  
ball bearing, made to fit your work.

*Either kind* reduces drilling costs  
with a vengeance.

*Send us a lay-out of your drilling work  
And we'll tell you what we can do for you*

**Nelson-Blanck Mfg. Co.**  
DETROIT, MICH.

New York Office: 50 Church St.

## A Lot of Drilling Capacity—

This 16-inch, No. 7 Barr  
is a sturdy, reliable, highly  
efficient sensitive that will  
give you more service and  
satisfaction than you have  
ever bought for so small a  
sum. Takes drills up to  
 $\frac{3}{4}$ -inch, and handles them  
effectively. It gets results.

*Let us have your address for  
complete description.*



**FRANCIS REED CO., 43 Hammond St., Worcester, Mass.**

# Drill In Any Pattern—

Triangle, Square, Rectangle, Oval or Staggered



With the  
Patented  
U. S.  
MULTIPLE  
Spindle  
Drill  
Head

**Transforms Your Single Spindle Drill Press into a multiple spindle, and you can drill several holes at the same speeds and feeds you use for drilling one. The patented double adjustment of spindles enables you to drill in any pattern—oval, triangular, rectangular, square, straight line or staggered.**

The picture shows our adjustable type, which we make regularly with from 2 to 6 spindles. We make special heads to order, of both the adjustable and fixed spindle types.

*It will cost you only a letter and a layout to find out how much we can save you on that intricate drilling operation*

**The United States Drill Head Co.**  
Cincinnati, Ohio, U. S. A.



## Why Break Taps?

**The Woodstock Improved  
Safety Tapping Chucks  
Eliminate this Waste**

No matter how difficult the work, the Woodstock makes it safe to tap tough metals, blind tapping, and bottom tapping in shallow holes where a stop on a machine is useless.

This money-saver automatically releases tap the minute it binds or strikes bottom. The five sizes use standard taps.

*Glad to send you one on trial*

**Peter Bros. Mfg. Co.,** 115 Railroad St.,  
ALGONQUIN, ILL.

## Saves Time Between Cuts

**Which Means Money**

**THE BARKER  
Wrenchless Chuck**



Operated more simply and effectively than an air chuck, and at far less cost. The work is centered automatically, chucked with one movement of the lever, and held with all the pressure it will stand. Gives the operating facility and speed of an air chuck without the cost for installation and maintenance. Made with two or three jaws for all work on lathes, turrets or semi-automatics.

*Write for full description*

**Thomas Elevator Company**

**CHUCK DIVISION**

**31 S. Hoyne Ave.,**

**Chicago, U. S. A.**



## Barnes Drills

8 to 50" Swing

State size you are interested in and we will gladly quote. This is our 20-inch Drill with wheel and lever feed. Can furnish self feed and back also.

We have made over 22,000 of this size drill—is very popular and there is a reason—it's the best 20-inch drill made for the money.

We make this  
**Adjustable Arbor Press**  
 in three sizes

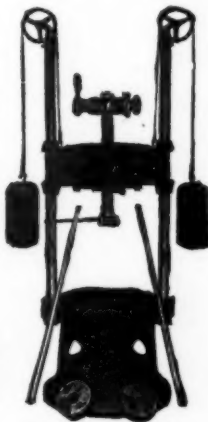
No. 1 size 12" x 24—\$100.00

No. 2 size 20 x 36— 175.00

No. 3 size 30 x 36— 200.00

\* Means 12 inches between side screws.

Frankly, this is not a cheap Arbor Press, but is strongly made and most convenient to operate—just a lot better than others.



**W. F. and John Barnes Co.**  
 123 Ruby St., Rockford, Ill.

USE **THE WALTON TAP EXTRACTOR** *SIXTY DAYS*

On our free offer to test its merits



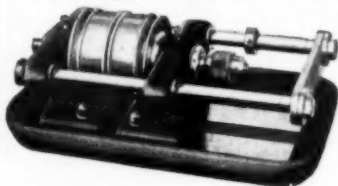
Taps have a habit of breaking at or below the surface, causing trouble and loss of time, just when you are in a hurry—that's when it generally happens. The Walton Tap Extractor quickly removes the broken piece, without injury to the work, and you can go ahead with the job as if nothing had happened. Sizes No. 8 to 1½".

*Why not try it NOW, before more taps break?*

**THE WALTON CO., Hartford, Conn.**

**Whitney Friction Driven  
No. 1 Tapping Machine**

**Saves Taps—Insures Perfect Threads and Holes**



**Capacity  
Up to ¼"**

**Weight  
85 lbs.**

Friction drive and reverse—very sensitive. Ball bearing end thrust. Saves taps, gives perfect results, and its quick and easy control insures maximum output. Complete with countershaft, Jacobs chuck and cross bar for holding work fitted to your job. Special fixtures on order. Write for prices.

**Whitney Metal Tool Co.**  
**95 Forbes Street, Rockford, Ill.**

# NEW RICKERT SHAFER COLLAPSIBLE TAP



A new and better Collapsible Tap, produced by experts. Capacity 1" and up

The R-S Collapsible Tap is designed by our own experts, who have had many years of practical experience in the development, design, manufacture and use of threading tools. It is offered as a worthy companion tool to the now famous R-S (Boehm) Automatic Die-Head.

This modern tool makes good in every shop that has given it a try-out.

It is *positive* in action so that it *will always collapse* at the desired point without dependence upon any kind of spring action. A movement of the knurled ring one full graduation varies diameter of cutting points *one-half of one-thousandth* of an inch, from which it is obvious that adjustments may be made infinitely close.

Write for complete description. We'll be pleased to have your inquiry; you'll be equally pleased with the Tap

**Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.**

# Steel Bearing Balls

Brass  
and  
Bronze  
Balls



Steel  
Burnishing  
Balls

*Ask for Price List 23-H*

## The Abbott Ball Company

Elmwood District, Hartford, Conn.

## A Noiseless Riveter. But, Oh Boy! How It Does Hustle!



It isn't always the noisiest tools that do the most work. The—

### Grant Rotary Rivet Spinner

—besides being noiseless, is unequalled in its combination of *speed*, *uniformity* and *finish*. Speed, one rivet per second, with any degree of tightness or looseness desired. Heads perfect and highly polished. Operated by boy or girl.

*Ask for Catalog, showing several styles  
Also send samples of work for riveting*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

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## *How To Cut Reaming Costs*



## **McCrosky-Super Reamers**

Average from 10 to 20 regrindings and adjustments for each set of blades. The last cut is as clean and finished as the first. New blades can be easily inserted in the original body. The patented locking device insures continued rigidity and accuracy. There is a particular size and style McCrosky-Super for your job.

*Send for a McCrosky Catalogue Today*

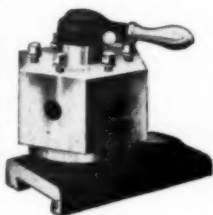
**McCrosky Tool Corporation**  
**Meadville, Pa., U. S. A.**

Branches and Agencies in all principal cities

Export Agents: Benjamin Whittaker Inc., 21 State St., New York



# Help Yourself—



## Your Product

can be manufactured cheaper by an F. & S. Turret.

Install one of these attachments on your Lathe and note the increase in production.

**FAY & SCOTT, DEXTER, ME.**

**PRYIBIL**



Manufacturers and  
dealers of machine  
tools, lathes and  
wood working  
machinery.

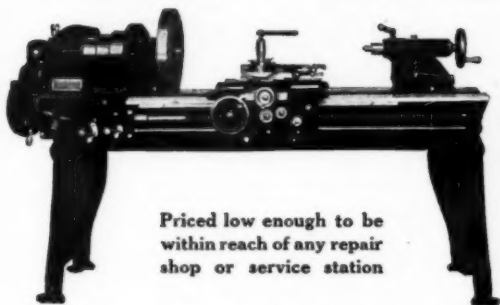
*Catalogues and prices on request*

**ESTABLISHED 1859**

**P. PRYIBIL MACHINE CO.  
INCORPORATED**

**512-524 West 41st Street, New York, N. Y.**

*"Built like a Watch"—Said a user of the*  
**Willard MATTMAN  
BRATTEN Precision Lathe**



**Priced low enough to be  
within reach of any repair  
shop or service station**

A LATHE for the most fastidious tool maker at a very popular price. We can supply all the usual tool-room equipment.

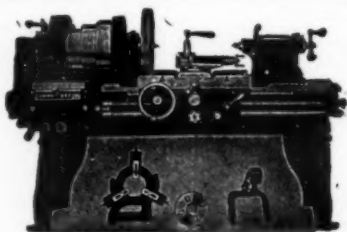
Our lathes are built in two sizes only, 13" and 15", and can be equipped with a geared headstock, all chrome nickel steel gears with shafts running on ball bearings. It is "built like a watch." Single pulley can be fitted with reverse or brake and all geared head lathes are apron controlled.

All our lathes are provided with reverse in apron, micrometer dials, thread cutting dial and many other refinements which makes Willard lathes the best you can buy for the money.

Our lathes are built for the hardest usage and for the most accurate work, therefore they make most excellent production lathes. We can furnish quick change or semi-quick change feed. All parts are standardized throughout.

*Our specialty—Tool Room Lathes at the right price*

**The Willard Machine Tool Co., Inc.**  
CINCINNATI, OHIO, U. S. A.



The 18" Heavy Duty Quick Change Gear MUELLER Engine Lathe is a marvel for rigidity, ease of control, and durability. It is the kind of Lathe you need in your shop to meet present day competition.

*Let us tell you all about it*

## **The Mueller Machine Tool Company**

Radial Drills and Lathes

**ESTABLISHED 1902**

**CINCINNATI, O.**

## **Shapers, Lathes and Millers**



Moderate prices with highest grade materials and workmanship.

Steptoe Shapers, Millers and Lathes should be your first consideration in equipping your machine shop.



14"x6'—\$400.00

16"x6'— 450.00

With Quick Change Gear Box \$85.00 extra

*Send for complete Catalogue*

## **THE JOHN STEPTOE COMPANY**

**2951 Colerain Ave.,**

**CINCINNATI, OHIO**

# Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½" to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

## **Pedrick Tool & Machine Co.**

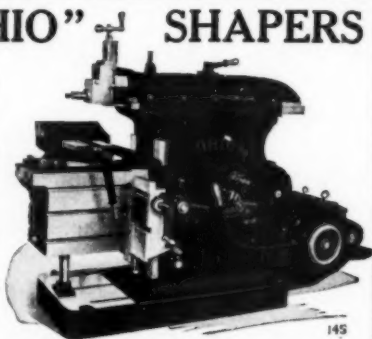
**3644 N. Lawrence St., Philadelphia, Pa.**

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,  
Portable Millers, Pipe Benders, etc.

## **"OHIO" SHAPERS**

Accuracy  
Power  
Long Life  
Plus  
"OHIO"  
QUALITY

All the way  
through



**The Ohio Machine Tool Co.**

*Established 1887*

817 So. Leighton St.,

KENTON, OHIO

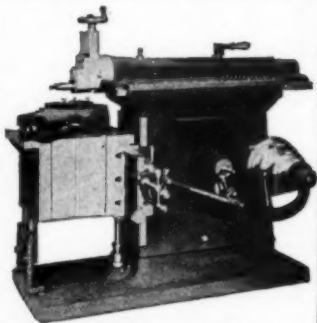
A Complete  
Line of

## **HOLLINGWORTH SHAPERS**

Back Geared  
Crank Shapers,  
12", 14", 16", 20",  
24", 28" and 32",  
with quick re-  
turn of stroke.

Cone  
Pulley,  
Single  
Pulley or  
Motor  
Drive.

Well adapted  
to internal key-  
seating.



**Hollingworth Machine Tool Co.**

2nd & Greenup Sts., Covington, Ky.

# **—Your Locker Question**

**Should Be Settled Right—**



*May We Help You?*

**THE IDEAL CALLS FOR:—**

**Privacy**

**Cleanliness**

**Convenience**

**No Repairs**

**No Replacements**

**Less Fire-hazard**

**Less Floor Space**

**“Terrell’s” is the Correct Answer!**

Terrell Steel Lockers embody all the qualities of the ideal locker. The first cost is the last cost—and you will be enjoying their superb wearing qualities long after the original expenditure has been forgotten. And the first cost may not be as much as you imagine—we shall be glad to make a close estimate.

*Writing us incurs no obligation—let’s hear from you*

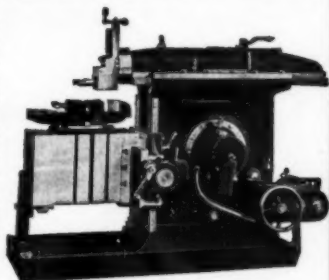
**Terrell’s Equipment Company**

**Hall & Division Sts., Grand Rapids, Mich.**

## COLUMBIA SHAPERS

Have the weight and proportions essential for proper rigidity—centralized control affording quick, convenient operation—and high class workmanship which guarantees accuracy and best wearing qualities.

*Make no mistake—  
get a Columbia  
for best results.*



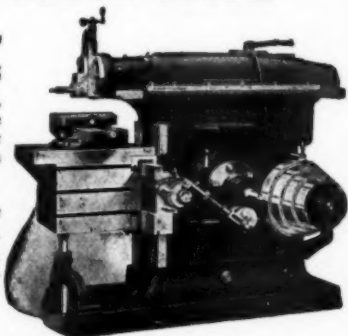
**18", 20", 24", 28", 32"**  
Cone, Single Pulley or Motor Drive

**The Columbia Machine Tool Company**  
Hamilton, Ohio

## SHAPERS

**12", 14", 16"**  
Plain Crank,  
**16", 20", 25"**  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

**28" and 32"**  
Back Gear-  
ed Crank,  
Single Pul-  
ley Drive.



**The Smith & Mills Co.** Station B,  
Cincinnati, O., U.S.A.

# I Pay 500% Annual Dividends

You Can Prove It Yourself

*Built Since 1887  
Better now than ever*



I am the

**TOWSLEY  
TRUCK**

I am made in all  
styles and sizes  
to meet every  
requirement.

**TAKE A PENCIL** and do a little simple figuring. Make your own estimate of how much labor is saved each time a truck is used. Multiply this by the approximate number of times it is employed per day, and this, again, by the labor cost per hour, and you can easily estimate the saving for a month or a year.

**EFFICIENCY ENGINEERS** have figured this out with great care, and they say that the average truck pays for itself every two or three months, *earning about 500% a year.*

## I, the Towsley Truck,

—am such a good truck, because my makers believe that anything which earns 500% a year deserves to be well made. They believe it is economy to build me the best they know how—not to sell at a price, but to last the longest, to give the best service, and to earn the largest dividends. And that is why I have been adopted in so many plants as their standard truck equipment.

*Write to my makers. Tell them your requirements.  
Let them help you make money. They are the—*

**John T. Towsley Mfg. Co.**  
1036 Woodrow St., Cincinnati, Ohio

# CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and  
Coventry Chains, Block, Roller and  
High Speed Silent types on hand



*CATALOG*

**CULLMAN WHEEL CO.,**  
1359 ALTGELD STREET

**CHICAGO**



**REDFACE**



**PULLEYS**

**SHEAVES and  
FLY WHEELS**

**Highest Quality**

*Write for  
CATALOG*

**THE PYOTT FOUNDRY CO.**

328 N. Sangamon St., Chicago, Ill.

## ***You Need Less Oil***

**When using a Curtis Oil Extractor**



**No. 400—Capacity: 2 Bushels**

It helps you to make a better showing on the profit side of the ledger. The price of the machine is returned in a few months; after that the oil saved from chips, shavings and waste is pure gain. The three sizes are easily operated, sturdily built and have ball bearings.

***A Curtis reduces oil bills and expense.***

***Write for details and prices.***

**Albert B. Curtis Estate**

**Box 44**

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**Worcester, Mass.**

## COOPER UNIVERSAL JOINTS FLEXIBLE COUPLINGS

**"YOU CAN'T BREAK THEM OR WEAR THEM OUT"**

Smooth; neat; only 5 simple parts; large oil space;  
working surfaces case-hardened; no limit to size;  
guaranteed stronger than shaft at any angle.

6 PATENTS



Three hundred years ago Hooke invented the Universal Joint with fixed centers. Three hundred years have elapsed and still the Hooke type of universal joints are burning up power and breaking in operation.

The Cooper Patented Universal Joint with no fixed centers is just as frictionless as the crosshead of an engine at any angle. **"You can't break them or wear them out"** with shafts joints are bored for. Perfect lubrication at any speed.

Sizes  $\frac{1}{4}$ " to 2" in stock bored to fit YOUR shafts.

*Send for one and try it out*

**Cooper Flexible Transmission Co., Inc.**  
1723 8th Ave., Brooklyn, N. Y.

## Weigel Single-Wheel "Kwality Kaster"

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

## Double-Wheel "Trukaster"

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

*Write for Price List*

**THE HAMILTON  
CASTER & MFG. CO.**  
HAMILTON, OHIO



Investigate LATEST  
**"WHITNEY"**  
HIGH MILEAGE  
Roller and Silent Type  
**CHAINS**

Lowest in Cost per *Thousand Miles* of Service



Latest Roller Chains Have Special Quality  
Solid Rolls and other Important Improvements

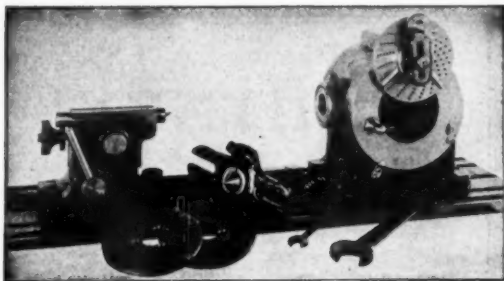
**Front End Motor Chain Drives**



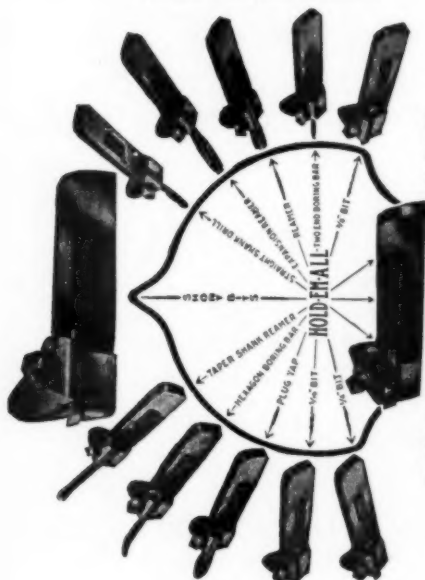
Exceptional  
Mileage  
and  
Never Known  
to Skip the  
Sprocket Teeth



**The Whitney Mfg. Co.**  
Hartford, Connecticut, U. S. A.



Plain Index Centers Swing 10" Diam.  
For any Plain Milling Machine



**"HOLD-EM-ALL" TOOL HOLDERS**

Holds any shape stock. Holds short bits. Combines many in one. Made R and L hand, Off-set and S shanks, and conform to all types of other makes. Write for catalog.

**SIMMONS ECONOMY TOOL CORP., ALBANY, N. Y.**

## WHY Keep Your Production Down

and continue to waste money? This is practically what you are doing when you use cheap, inaccurate Index Centers, when a few dollars more will buy a DICKOW INDEX CENTER, which is absolutely dependable, and guaranteed for its high degree of accuracy.



**PROMPT  
DELIVERY**

Stood the  
test for  
14 years



Over 2000 satisfied users  
all over the world.

Your old Index Centers  
taken in trade.

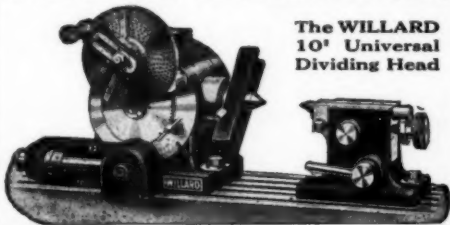
We also sell an Index Center called "Best"

Dependable and Accurate.

*Write us today for complete descriptions*

**FRED. C. DICKOW MACHINERY CO.**  
2105 W. Lake St., Chicago, Ill.

## Takes Care of Heaviest Cuts



**The WILLARD  
10° Universal  
Dividing Head**

YOU WILL FIND these index centers reliable for any job on a milling machine. The graduated swivel head adjustable at any angle between 10 degrees below horizontal to 10 degrees beyond vertical. Clamping device is specially rigid. Spindle has No. 10 B. & S. taper and is made of the highest grade steel, hardened and ground. Head and tailstock centers made of best tool steel. Complete index plate. All parts interchangeable. Made right or left hand. *Full details sent you on request.*

**The Willard - Middletown Machine Co.**  
Middletown, Ohio

## Burke Bench Millers

**FOR  
Accuracy  
Convenience  
Economy**

On small milling operations, where accuracy as well as production must be had, are the places to use Burke Bench Milling Machines.

*Built in various sizes,  
both hand and power  
feed, and at prices  
ranging from \$100 to  
\$220.*



**\$220.**

**BURKE No. 4**

**The Burke Machine Tool Co.,** 297 E. 16th St.  
Conneaut, Ohio

*No. 1 U. S. Improved*

**Hand and  
Weight Feed**

**Milling Machine**

—and—

**14" U. S. Sensitive Floor Drill**

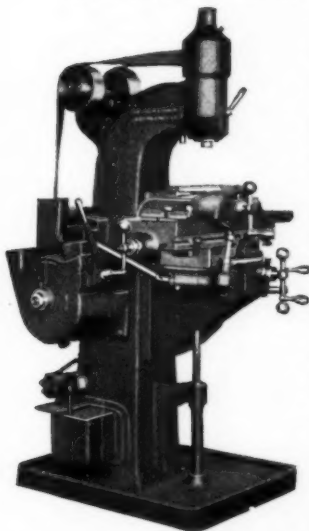
are two moderate-priced tools with which you can do a tremendous amount of work. The Miller has more power than any similar machine of its weight, and is extremely efficient and economical in operation. The Drill is unexcelled on holes  $\frac{1}{2}$ " and smaller.

*Description and money-saving prices upon request*

**The United States Machine Tool Co.**  
**Cincinnati, Ohio**

# The Taylor & Fenn Vertical Milling Machine

## With Circular Milling Attachment



*The Circular Milling Attachment, when used with our Vertical Milling Machine, affords great possibilities for continuous milling operations, for milling segments of circles, circular slots, and all varieties of circular or longitudinal milling on plain or irregular shaped pieces within its capacity.*

*The Attachment may be operated by either hand or power feed, and as it is driven from the main table driving shaft of the machine proper, both the power table feed and the power circular feed may be used simultaneously, which is of great advantage in certain classes of work.*

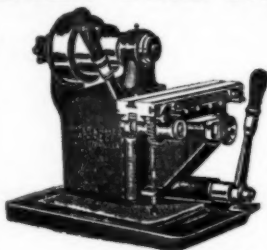
### SPECIFICATIONS

Working surface of table,.....	10½"
Maximum distance spindle to table,.....	9"
Height,.....	4"
Width of T slots,.....	½"

*You'll be interested in complete description; may we send it?*

**The Taylor & Fenn Company**  
Hartford, Conn., U. S. A.

# Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

*Send for descriptive circular*

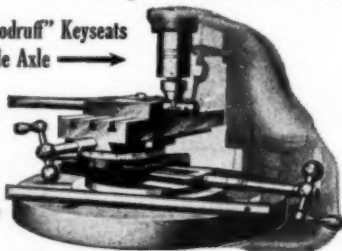
**THE CARTER & HAKES MACHINE CO.,** West Winsted, Conn., U. S. A.

NEW ENGLAND AGENTS—Hill, Clarke & Co., Boston  
NEW YORK AGENTS—Hardinge Sales Co., Grand Central Palace  
WESTERN AGENTS—Marshall & Huschart Machinery Co., Chicago, St. Louis, Indianapolis.

# Mills On Any Drill Press

Cutting "Woodruff" Keyseats  
In Automobile Axle →

For the  
Garage  
Dismantler  
Repair Shop  
Patternmaker



The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reboring the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

**Hinckley Machine Works,** HINCKLEY, ILL.



**“—saves  
nearly half  
the power!”**

*The Record of the Rarefied*

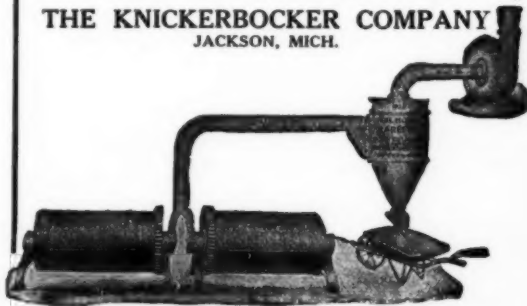
**Somebody wrote to Knickerbocker:—**

“This reduction in horse power is a great thing. Today we are operating the entire department with two 10s and one 5, making a total of 25 horse power, and before the installation of your “Rarefied” Dust Collectors we used 45 h. p. to do the same work.” *Name of customer on request.*

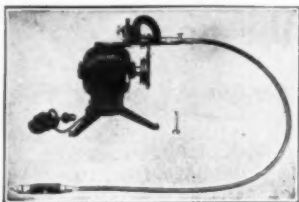
That's the experience everywhere—in big plants and small ones, and with all kinds of heavy and cutting dust—the “Rarefied” saves power and repairs, assuring big economy and long life. It collects the dust and discharges it automatically before the air reaches the fan, which eliminates all cleaning out by hand.

*Our explanatory Booklet is yours for the asking*

**THE KNICKERBOCKER COMPANY**  
JACKSON, MICH.



## Haskins' Flexible Shaft Equipments Combine



the flexibility of the human hand with the accuracy of a machine. Type H-5 is only one of our complete line.

*Write for catalog No. 36 today*

**R. G. Haskins Company**  
29 So. Desplaines St., Chicago, Ill.

## SEND BLUEPRINTS for Quotations on Hollow Bored Forgings and Steel Shafts



**Piston Rods  
Clutch Shafts  
Lathe Spindles**

**Rams  
Steel Pipes  
Etc., Etc.**

*You'll be pleased with our service*

**American Hollow Boring Co.**  
Erie, Penna.

# Meeting Competition is a matter of COST

**Dump a gross or more of Screws here**

Drives machine screws, wood screws, stove bolts, hex. head or square head bolts, or most anything that can be mag-  
azined.



## **Magazine-Fed Screw Driving Reduces Costs 75% to 85%**

**Factory costs** determine the margin you have to work on to meet competition at a profit. Wherever you reduce costs, you increase your margin just that much.

**Magazine-Fed Screw Driving** reduces the cost of driving screws 75 to 85 per cent. You need that saving—some of your competitors probably have it now.

**Tell us the dimensions** over all of your work, and the gauge and length of screws you are driving, and we shall be glad to furnish you with complete information.

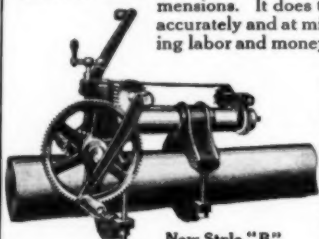
## **The Reynolds Machine Company**

**Dept. H. H.,**

**Massillon, Ohio**

## A Strong Portable Key-Way Cutter

This handy little tool is easily taken right to the job where it cuts key-ways of just exactly the right dimensions. It does the work quickly, accurately and at minimum cost, saving labor and money. Just clamp the tool to the shaft and turn the crank.



New Style "B"

Style "B" has six milling cutters and cuts keyways from  $\frac{1}{4}$ " to 2" wide, in shafting 2" to 8" in diam. and 12" long without resetting.

**THE BUCHER-SMITH CO.**  
East Liverpool, Ohio

## Nicholson Expanding Mandrels



**One Set of Only Nine  
Fits Any Hole  $\frac{1}{2}$ " to 7"**

One of the set of nine fits any hole, round or square, from  $\frac{1}{2}$ " to 7", without calipering or guesswork. They will take the place of ALL the solid mandrels you now have and of those you would have to make for future use. They *save space, time and labor*, and are adaptable to work of the most varied nature. Write for 30-day trial offer.

## Nicholson Arbor Presses

are also great savers of time and labor. There's a size for your needs. Write for folder.

**W. H. Nicholson & Co.**

117 Oregon St., Wilkes-Barre, Pa.

# Simplest and Best Keyseater

The New Catlin Makes New Records



*Popular in*

**Navy Yards  
Government  
Shops  
Automobile  
Plants  
Factories at  
Home and  
Abroad**

*— because it  
never fails to  
reduce costs!*

**Has less than half the  
number of parts of  
other keyseaters.**

**Sizes for all classes of  
work.**

**Built for direct-con-  
nected motor or belt  
drive.**

The Catlin is an exceedingly simple machine to operate, and makes it easy for any mechanic to make good, accurate keyseats. And it's built to stand up to the most exacting demands.

In three minutes time it cut a keyseat 6" long, 1" wide and  $\frac{7}{16}$ " deep in a cast steel hub; in twenty minutes keyseats 2 $\frac{1}{2}$ " long,  $\frac{1}{2}$ " wide and  $\frac{1}{4}$ " deep in 20 mitre gears of 8" diam. This was all done in the ordinary course of a day's work.

*Write us your needs and we'll supply the right machine*

**Chattanooga Machinery Company**  
**Chattanooga, Tenn.**



## **"Wear-Ever" Woodruff Chuck And Keyway Cutter**

The "Wear-Ever" Woodruff Keyway Chuck insures a positive drive and true-running cutter. Eliminates making collet chucks. Fits all standard makes of milling machines, and is made in all tapers, such as Brown & Sharpe and Jarno tapers.

Let us supply you with cutters  
No extra charge for the square

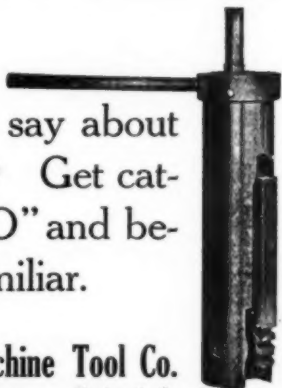


Centers by the shank

Drives by the square

**SCULLY-JONES & COMPANY, 13th and Robey Streets  
CHICAGO, ILLINOIS**

What  
can you say about  
this tool? Get cat-  
alogue "O" and be-  
come familiar.

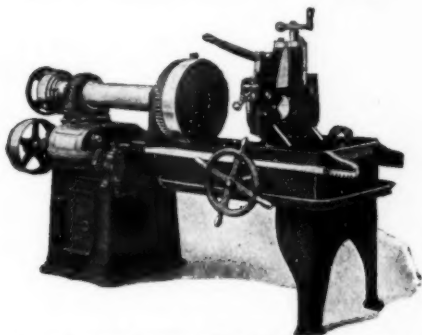


**National Machine Tool Co.**

2268 Spring Grove Ave.,

Cincinnati, O.

**Speed and accuracy  
guarantee a lower cost  
on your pipe threading**



(No. 3 Peerless Improved—Cap.  $\frac{1}{4}$ " to 3"—Belt Drive)

**Bignall & Keeler Pipe Machines** are the ripe product of some 35 years' experience in building and perfecting this type of machine tool, and we know that every one of our 17 styles and sizes can keep your pipe threading and cutting costs down to bed-rock.

B. & Ks. are superior in conveniences, so that the operator has no trouble in getting out the maximum quantity of work. And besides having speed, they do accurate work day after day, year in and year out—they are built for the strenuous life and stand up to it.

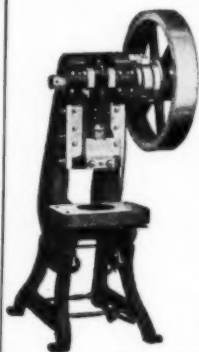
*Details gladly sent on request—write us or our agents*

## **Bignall & Keeler Machine Works** **Edwardsville, Illinois**

**Sales Agents: Manning, Maxwell & Moore, New York, N. Y.**

Chicago Philadelphia Boston St. Louis Pittsburgh Cleveland New Haven  
Cincinnati Buffalo Syracuse Detroit Milwaukee San Francisco Seattle

# Here Is A Press



With Plenty of Steam  
Back of THE PUNCH

HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Made in straight side and  
inclinable types. Their great  
power backed by rigid design  
enable them to do the work  
you demand and stand up to it.

*Write For Catalog*

**Rockford Iron Works**  
Rockford, Ill.

## Complete Line of Willard Power Presses



(Inclinable Open Back)

**For Efficient, Economical  
Sheet Metal Press Work**

Built for hard service and embodying  
the latest power press improvements.  
All parts practically interchangeable.  
High grade steel shaft capable of with-  
standing the heaviest strains. Latch  
has positive safety stop making it im-  
possible for press to "repeat" until the  
treadle is pulled clear down.

**Powerful--Accurate--Durable**

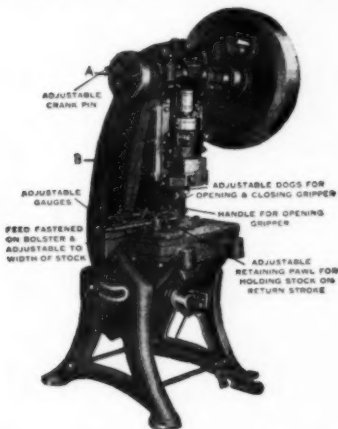
*Full details on request*

**The Willard-Middletown Machine Co.**  
Middletown, Ohio

# The WALSH

## Automatic Push or Pull Feed

For Feeding Roll or Strip Stock in Power Presses



A simple, practical device which adds so much to the earning capacity of power presses of all makes that you cannot afford to be without it.

It permits the stock to be automatically pulled or pushed to the die, as best meets your requirements. Feed is adjustable 0" to 6". Takes stock  $\frac{3}{4}$ " to 6" wide. It is easily attached, positive in operation, simple in adjustment and a big aid to production.

*Complete information gladly sent for the asking*

## Walsh Press & Die Co.

4709 W. Kinzie St., Chicago, Ill.

*Also Manufacturers of a Complete Line of Power Presses*



Nos. 1, 2 & 5

## That Job Of

cutting sheets, bars and round rods in iron and mild steel, can be done on our line of

## Hercules' Shears and Rod Cutters

without starting up the power plant. No belts to sew, no shafting to turn.

*Catalog No. 2 on request.*

**W. C. & F. C. TUCKER**  
HARTFORD, CONN.



Plain Shears Nos. 3 & 4



**Hand  
Power  
Angle  
Shear  
AND  
Notchers**

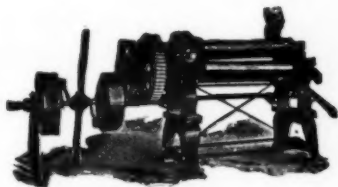
## THE LITTLE BLACKSMITH



**WRITE for BOOKLET**

**J. F. KIDDER MFG.  
COMPANY**

**BURLINGTON, VERMONT**



# BELOIT

*INITIAL TYPE*

## Sheet & Plate Bending Rolls

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The Beloit Initial, or side bending, type roll has been designed to meet the demand for a strong, efficient, quick acting roll for use where the heavier Pyramid Type is not required. It is especially adaptable for use in shops handling sheet metal and for the lighter class of work in Boiler Shops, such as stacks, breeching small tanks, and the like.

The upper roll is geared to the adjustable lower roll thus pinching the plate, while the idle roll, which is also adjustable, does the bending. The outer housing is hinged and the upper roll is raised by throwing a cam lever, thus permitting the removal of sheets bent to a full circle. All styles of these rolls are double back geared and require a minimum amount of power.

Built in twenty-six sizes with capacities up to 5/16" and from 14" to 96" between housings.

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### HENDLEY & WHITEMORE CO.

100 S. State St.,

BELOIT, WIS.



Do you fully realize the  
importance of using the most  
**Rugged Punches?**

T. H. L. PUNCHES are carefully made of the right tempered tool steel, so that *their users have continuous and profitable production.*

We carry large stocks of regular sizes for immediate delivery. Special sizes quickly made.



*A trial order will please  
us both. May we have it?*

**T. H. Lewthwaite Machine Co.**  
417 East 31st St., (Est. 1890) New York City



**DUPONT**  
**Power Hammers**

**Belt or Motor Drive**

For general forging and  
tool dressing.

They embody a design and  
workmanship that are un-  
surpassed.

*Send for Bulletin*

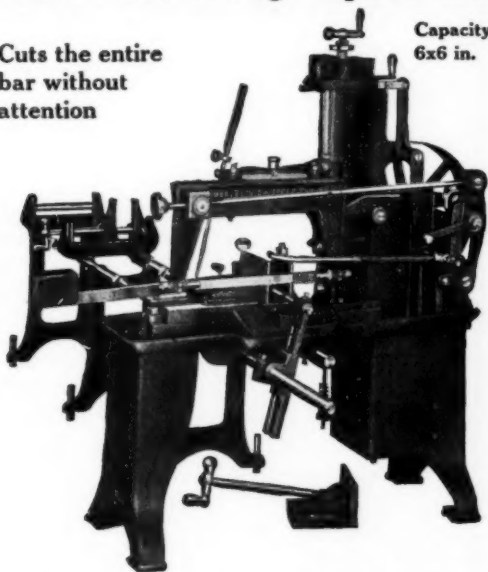
**Belt Driven**

**United Hammer Co.**  
45 Bromfield St., Boston, Mass.

# Automatic Stock Feed, Draw Cut Marvel No. 5 High Speed Saw

Cuts the entire  
bar without  
attention

Capacity  
6x6 in.



The great combination of speed, economy and accuracy. Equals the output of eight ordinary hack saws. Cuts entire bar into desired lengths without operator's attention. A modern money maker and a saver of time, blades and expensive material, and always accurate.

Don't overlook this. Consider that it is effecting great saving in hundreds of shops, and will do the same for you.

WRITE US FOR CATALOG of  
MARVEL hack saws, band saws, punches, shears, rod cutters, drill press vises.

**Armstrong-Blum Mfg. Co.**  
341 N. Francisco Ave., CHICAGO, ILL.

# New Hisey SUPER

*Are more*

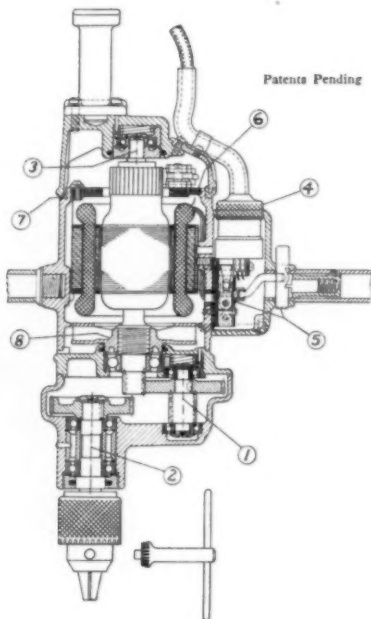
POWER need  
the New Hisey S

CURRENT (↓  
capacity.

MOTOR of  
dangerously high  
life of machine)

MECHANIC  
into the construct

Patents Pending



1. Ball Bearing

2. Ball Bearing

3. Ball Bearing

4. Quick Change

5. Famous Hisey

Exhaustive to  
tinue to do more

A close tabu  
drills, has proven  
is less than other

Exclusive Hi

For maximum  
Drill, and be con

## THE HISEY-WOLF MACHINE

AGENTS IN ALL PRIN

# PER Universal Drills

*more efficient from all angles*

POWER necessary to do the work. There is an abundance of this in the new Hisey Super Drill, and some to spare.

PERCENT CONSUMPTION is lower than any drill of same rated power.

MOTOR of our own design, is cool running. Does not operate at excessively high speed (a feature which reduces wear and adds to the life of the machine) and is equipped with a practical commutator of liberal size.

MECHANICAL DESIGN determines the life of any machine. Look at the construction of this new Hisey Super Drill.

- |                              |  |
|------------------------------|--|
| Ball Bearing Gear Spindle    | 6. Adjustable brush holder yoke  |
| Ball Bearing Chuck Spindle   | 7. Improved vent openings, safeguard the motor and interior parts against accidental and willful abuse |
| Ball Bearing Motor Shaft     |  |
| Quick Cable Connector        | 8. Improved ventilating fan  |
| Famous Hisey Patented Switch |  |

Exhaustive tests have proven that Hisey Drills *will do* and *will cost less* to do more work at lower operating cost than any other machine.

Close tabulation by prominent manufacturer using several hundred tests has proven that the maintenance (cost of up-keep) of HISEY Drills is less than other machines.

Exclusive Hisey features produce these facts.

For maximum production with uninterrupted service, insist on a Hisey Drill and be convinced.

**CHINE CO., Cincinnati, Ohio**  
ALL PRINCIPAL CITIES

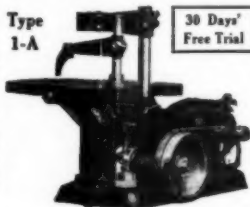
# Saves 60% In Cost Of Filing

Uses up broken saw blades and saws  
30% faster than other sawing machines

But don't take our word for it. Send for one of our **Filing and Sawing Machines** on 30 days' trial, and return at our expense if not the time saver we claim.

Uses standard files from 3" needle to 12" flat or bastard, also any hack saw blade or even broken blades. Adjustable up and down to utilize entire file. Does not require skilled help.

Type  
1-A



30 Days'  
Free Trial

*Don't forget our trial offer. How about today?*


**Johnson & Biddle Tool Co.,**

Elkhart,  
Indiana

## "QUICKWORK"

Registered in U.S.A. and Foreign Countries

## Rotary Shears

 **Prices Reduced Sept. 1, 1921**

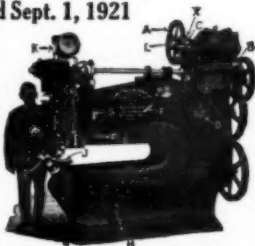
### Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

### Save 50 to 90%

Eliminates Oxyacetylene cutting and plate planing

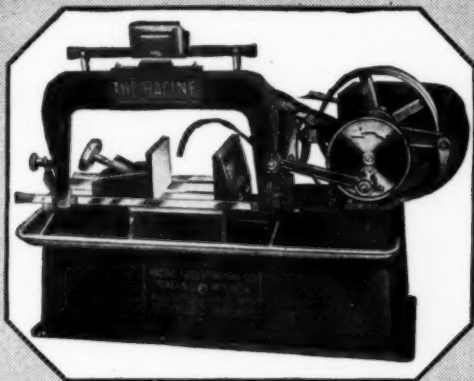
Write for catalogue No. 60



Patented June 3, 1913; Aug. 26, 1921.

**THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.**

Cable Address "Quickwork." Codes: W. U., General, Bentley's, Lehier's, ABC 5th Edition



**"RACINE" High Speed METAL CUTTING MACHINES**

## Look at the Chips

When you cut with a "Racine" High Speed Metal Cutting Machine you will always find the chips on one side of the work. This proves that the "Racine" *mechanical lift* *always* lifts the blade clear of the work on the non-cutting stroke. Others claim this feature but the "Racine" attains it. This not only saves blades but assures accuracy and speed impossible in any other machine.

Get the full facts on Racine High Speed Metal Cutting Machines. It means time and money to you.

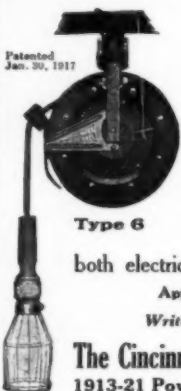
**Racine Tool & Machine Co.**

*Catalog H.*

**RACINE, WIS., U. S. A.**

**Mechanical Lift-Positive Draw Cut**

Patented  
Jan. 30, 1917



**Type 6**

## **"Autex" Extension Reel**

Rapidly finding a place in the largest industrial plants, machine shops, service stations, etc., in the U. S. Used for both electric lamp and power extensions.

Approved by Underwriters

*Write for descriptive circular*

**The Cincinnati Specialty Mfg. Co., Inc.**  
1913-21 Powers St., Cincinnati, Ohio

## **Saves Time and Material**

Cuts Hardened Steel Rods or Bars, Reamers, Taps, Copper and Brass Tubing, Aluminum, Etc., Quickly, Smoothly and Without Waste

### **Peter Bros. Ball Bearing Abrasive Cutter**

—is a big economy in the tool room or wherever such material must be cut. Has a rapid, thin, clean cut. Doesn't draw the temper, saves grinding, saves time and much valuable material. Soon earns its cost.

**8" Size \$22.50, with C. S.**

Splendid for tool room. Cuts high-speed steel up to 1" square.

**12" Size \$60, with C. S.**

Cuts up to 2 1/2" diameter, round or square, at any angle up to 45 degrees. Ball bearing.

**15 Days' Free Trial**

Write us or ask your dealer

**PETER BROTHERS MFG. CO.**  
115 Railroad St., Algonquin, Ill.



## Anderson Ever-Ready Balancing Ways

Balance 'most anything that revolves



Quickly determine balance of a piece, also test straightness of shafts, crank shafts, etc. Spindles so made that they can be hardened, glass hard, without danger of breakage. They do not become indented or lose accuracy in ordinary usage. Extremely sensitive.

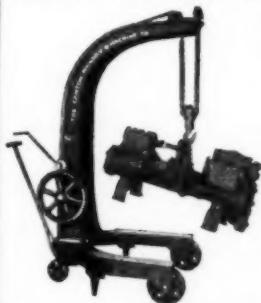
"Swing"	20"	40"	60"	72"	96"
Greatest distance between standards.....	20"	30"	30"	66"	88"
Capacity in lbs. ....	1000	2000	2000	5000	10000
Approx. shipping weight .....	45	90	150	350	650
Code .....	Resd	Bid	Bis	Bab	Ben

*Any of above can be furnished with longer shafts*

**Anderson Bros. Mfg. Co.**

1915 Kishwaukee St., Rockford, Ill.

## Giant "CanTon" Lifts Three Tons



The "CanTon" Portable Crane, Hoist and Truck enables one man to do the lifting and lugging which ordinarily requires the combined efforts of 6 to 10 men. 'Nuff sed.

That it will pay for itself in a short time, is a foregone conclusion.

*Write for Bulletin E-8*

**Canton Foundry and Machine Co.**

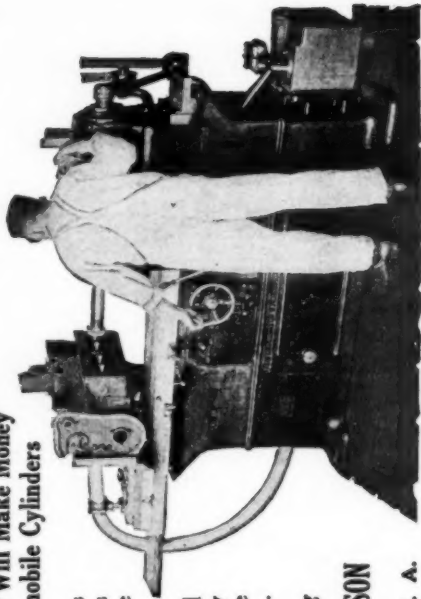
**Canton, Ohio**

New York Office: 45 West 18th Street, Second Floor

# AUTO REPAIR SHOPS

**The Whitney Cylinder Grinder Will Make Money  
For You Regrinding Automobile Cylinders**

The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.



*Write for new catalog*

**BAXTER D. WHITNEY & SON**  
Incorporated  
WINCHENDON, MASS., U. S. A.

**— BLOUNT —**

**Ball Bearing**



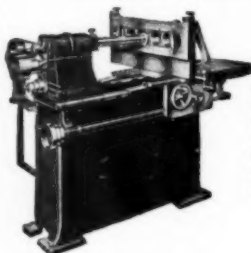
**Motor Grinders**

*Ask your dealer for prices*

**J. G. BLOUNT CO., Everett, Mass.**

## Regrinds 6 Ford Blocks a Day

And Larger Cylinders in Proportion



### The "SCHMIDT" Internal Grinder

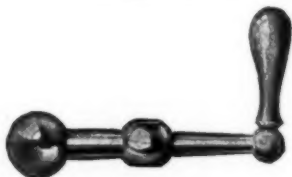
Regrinds ALL makes and sizes of tractor, truck and automobile engines.

Rugged in construction, simple in operation, and its work is the best.

A money maker for  
auto repair shops

*Better send us your name today for full particulars*

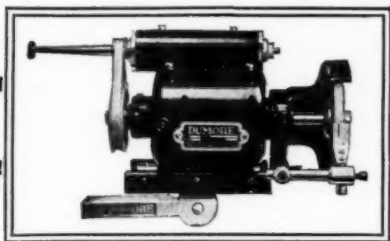
**B. L. Schmidt Co., Dept. A 8, Davenport, Ia.**



If looks would sell your machines, Balcrank Handles would be your main selling point. However, the appearance is only one of their fine points. For instance, they are economical. The Ball Crank shown is only one of our many standard types of Handles. May we show you our interesting line?

**The Cincinnati Ball Crank Co.**

**Oakley, Ohio**



**No. 2-AG Grinder, 30,000 R. P. M.**

**A**TTACHED in a moment to lathe, shaper or milling machine, the No. 2-A. G. DUMORE is instantly busy on internal work, or grinding flat, concave or convex surfaces. And doing it all without the tearing down of original set up!

Light in weight, coming completely equipped with endless canvas belt, cutter grinder rest, cross-feed lever, cord, plug and hardwood carrying case, this efficient grinder offers to alert buyers an opportunity to make a paying investment.

Your dealer sells the DUMORE No. 2-A. G. Ask him about it *today!*

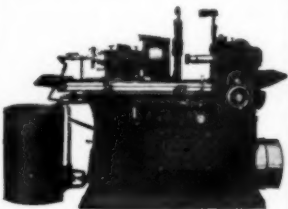
**WISCONSIN ELECTRIC COMPANY**  
4348 Sixteenth Street, RACINE, WISCONSIN

**DUMORE** HIGH SPEED **GRINDERS**

## "HYDROIL" Internal Grinder

for  
Greater Production  
**BELL-MOUTH  
ELIMINATED**  
Accuracy  
Finish

This machine has a table speed up to 30 odd feet a minute. On short strokes it will reverse 300 times per minute without shock or hand operation.



*We will be pleased to give you complete details in substantiation of our claims. Write for bulletin G280H.*

MACHINE TOOL DIVISION



## For Economical Production

Use Marschke Up-To-Date Heavy Duty Grinders



Efficient and safe, the kind demanded by modern shops and modern conditions. There's ample metal to eliminate vibration.

Complete exhaust system; a patented hood gives greater safety; SKF ball bearings thruout; enclosed motor construction, a. c. or d. c., and other good features.

*Improved Grinders in various types and sizes. What do you need?*

**Marschke Mfg. Co., Inc.,** Indianapolis, Indiana



# GENSCO

## Oil Hole Cover

To attach "Gensco" Covers, drill a hole—requires no tapping and assembling with screw driver. Save you money—are neat—cannot be lost off machine. All oil goes in the hole. May be used on the side as well as on the top—the Spring Feather holds them in place.

Millions in daily use.

1/4-inch mostly used.

Net Prices the Thousand:

5/32-\$32.50

1/4-\$35.00

5/16-\$37.50

### GENERAL SCREW COMPANY

Cincinnati, Ohio, U. S. A.

Manufacturers of Screw Machine Products.



Style "A"



The Hinge



Style "U"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

### GITS OIL CUPS

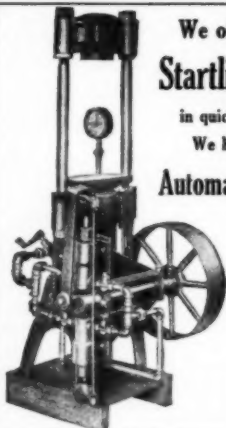
Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO

1940 SO. KILBOURN AVE., CHICAGO



Style "H"



We offer for the first time a  
**Startling New Feature**

in quick acting Hydraulic Presses.

We have recently developed an  
**Automatic Controlling Valve**

by means of which the ram movement of a press is controlled automatically to any predetermined length or pressure. Repeat strokes can be made continuously.

*Write for information*

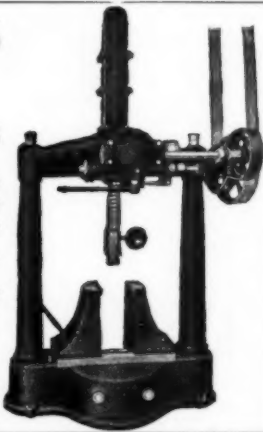
**LOURIE MFG. CO.**  
SPRINGFIELD, ILL.

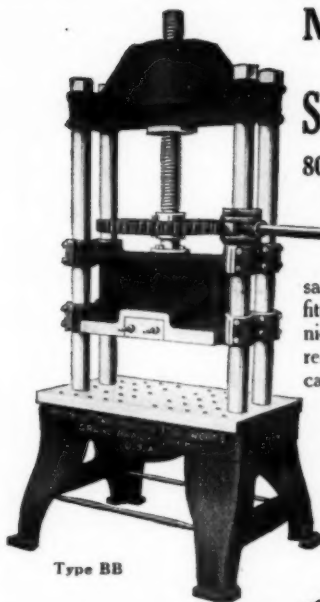
**ATLAS**  
**30 Ton**  
**Power Press**

will give you  
greatest possible  
efficiency on your  
production work.

*ATLAS Presses are built  
in all sizes and types.*

**Atlas Press Co.**  
Kalamazoo, Mich., U.S.A.





Type BB

## Manhattan 4-Post Screw Press

80,000 lbs. Pressure  
Table, 20" x 36"

A *one-man machine* which saves hours of time in fitting dies—so convenient that the tool maker requires no help. Die can be mounted on the large bed in any desired position. Affords perfect alignment between punch and die. Also made in three smaller sizes.

## Manhattan Grinder

A surface grinder that is silent, powerful and accurate. Non-vibrating wheel. Has many special features of merit.

*Get our literature*

**MANHATTAN MACHINE  
AND TOOL WORKS**

Dept. A

GRAND RAPIDS,

MICHIGAN





**Threading Tool**



**Right Hand Off-set Side Tool**



**Right Hand Turning Tool**

## ARMSTRONG Tool Holders

*They Save—*

High speed steel, 90%

Grinding, ----- 70%

Forging, ----- 100%

Over 100 tools for  
Lathe, Planer, Shaper,  
Slotter, etc.

*Get the free Catalog*



**Armstrong Bros. Tool Co.**

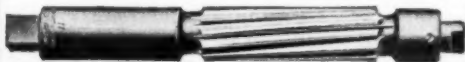
*"The Tool Holder People"*

308 N. Francisco Ave., Chicago, U. S. A.

## "MICRO-SET" HAND Expansion Spiral Reamers

**Cut Fast and Smooth**

**Will Reduce Your Reaming Costs**



**Micrometer Expansion  
Large Range of Expansion**

Unsurpassed for reaming Standard or Over-sized holes.

The reamer for production work. Also made with straight  
flutes and in all sizes.

*Descriptive circular and price-list upon application*

**The Schellenbach-Hunt Tool Co.**

116-124 Opera Place,

Cincinnati, Ohio

F. E. TIGHE SALES CO.  
2963 Montgomery Ave.  
Detroit, Mich.

AGENTS  
HAYDEN SUPPLY CO.  
1211 St. Clair Ave.  
Cleveland, O.

H. E. BARTON TOOL CO.  
104-06 S. Jefferson St.  
Chicago, Ill.

# Diamond Alloy

A Superior High-Speed Cutting Tool  
Cast to Accurate Form

**"You Can't Operate  
a Punch Press on a  
Slack Belt."**

Milling Cutters

Lathe and Planer Tools

SLITTING SAWS

Insert Blades for all types  
of cutters.

## Diamond Alloy

Heat Resisting and Wear Resisting

## P. H. BIGGS

*Exclusive Sales Agent*

1235 W. 9th St.,      Cleveland, Ohio

# DO You Use AIR?



THE POWELL  
AIR GUN VALVE

JUST PRESS  
THE BUTTON

CLEANS  
WORK BENCHES  
AND  
MACHINE TOOLS  
MADE IN SIZES  
 $\frac{1}{8}$ " TO 1"

ORDER A SAMPLE  
THE W. M. POWELL CO.  
1200 DRAPER ST.  
CINCINNATI, O.

BUY  
POWELL  
AIR GUNS  
KEEP  
CLEAN

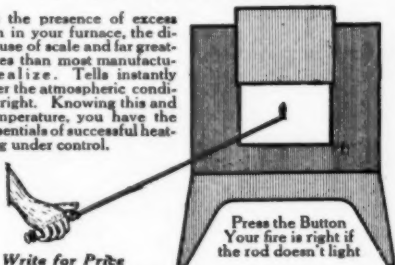
## Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. Acopy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

## Something New — And Good

### The Bennett Detectorod

Shows the presence of excess oxygen in your furnace, the direct cause of scale and far greater losses than most manufacturers realize. Tells instantly whether the atmospheric condition is right. Knowing this and the temperature, you have the two essentials of successful heat-treating under control.



*Write for Price*

**Bennett Metal Treating Co.**

Elmwood, Conn., U. S. A.

Also ask us about the Bennett Furnace



### Is More Efficient than Cyanide

Besides that it is **SAFE**, being non-poisonous. It is rapidly replacing cyanide in thousands of factories. It gives a better, cleaner, glass-hard case. Carbonizes at a lower temperature, saving furnace linings and fuel. Eliminates crystallization, warping and blistering. Does not deteriorate with age. Made in two grades—M for melting furnace, S for sprinkling.

#### **Tri. B. Brand Pack Carbonizer**

is a light, fast, long-lived carbonizing agent for use in boxes in a muffle furnace. Gives full value for every dollar spent. A trial order is all we ask.

**C. G. BUCHANAN CHEMICAL CO.,** Cincinnati, Ohio—St. L.

# Often Cuts Time In Two

Underwood's Portable Miller is Deservedly  
Popular in Railway and General Repair Shops

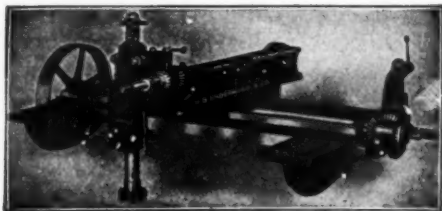


Figure 110

**I**TS RAPID, accurate, time-saving work satisfies everybody. It enables shops of every size to accomplish a wide range of rush repairs *in place*. The saving is obvious.

Figure 110 has power feed in both directions, and is usable in any position, horizontal, vertical or inclined. It faces a valve seat 22x40x7 in., or does other milling of similar dimensions. Operated by hand, small steam engine, air or electric motor. We can build to suit your special needs. Our line of Portable Tools includes:—

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners and reflex water glass grinders. We build special machines to order.

*Write for the Catalog—it pays to have one handy*

**H. B. Underwood Corporation**

1015-25 Hamilton St., Philadelphia, Pa.

## Second-Hand Machinery

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

**Write directly to those offering the machines for sale** for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool List advertisers.

### FOR SALE BY

**H & H Machine Co.,** - **4274 Easton Ave., St. Louis, Mo.**  
Grinder, No. 2 Cincinnati, plain.  
Planer, Lodge & Davis 24"x24"x6' bed.

### FOR SALE BY

**The Acklin Stamping Company,** - - - **Toledo, Ohio**  
**SCREW THREADERS.**  
Two Waterbury Farrel Standard Screw Threaders No. 30, one never set up and one slightly used.

### FOR SALE BY

**Reliance Machinery Sales Company**  
**Brighton Road at Pennsylvania Ave.,** - - - **Pittsburgh, Pa.**  
Air compressor, Ing.-Rand, 1750 cu. ft., m. d.  
Boring mills, 54" & 60" Bullard, 2 hds.  
Boring mill, 80" Niles, 2 heads.  
Drills, upright, 10" to 36".  
Lathes, 8" to 48"—real bargains.  
Millers, all sizes, plain & universal.  
Miller, 30"x30"x9" Ingersoll slab.  
Pipe machines, 2", 4", 6", 8" & 12".  
Press, No. 3½ Bliss, toggle.  
Press, No. 59 Toledo.  
Punch, Beatty, 1½"x1", 42" th., m. d.  
Shapers, 14", 16", 20", 24" & 32".  
Straightener, Shuster, ½" wire.  
Tapper, ½" Acme, 6 spindle.  
Over 200 Machines in stock. What have you for sale?  
Inquiries solicited.

### FOR SALE BY

**The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio**  
**ENGINE LATHES.**  
18"x 8' Lodge & Shipley, q. c. \$ 550. | 28"x12' Fay & S., loose chg. \$ 600.  
16"x 6' South Bend, loose chg. 300. | 30"x16' Prentice, loose chg. 800.  
18"x 8' Barker, loose change. 450. | 36"x24' American, quick chg. 2350.  
**PLANERS.**  
30"x30"x14' American, two heads, belt drive. \$ 1,500.  
36"x36"x14' American, two heads, belt drive. 1,800.  
Pedrick & Ayer open side, planes 30" wide, bed 11' long. 1,000.  
60"x60"x12' Sellers, widened to 72", four heads. 2,500.  
**MISCELLANEOUS.**  
Boring mill, 60" Niles vert. \$1,500. | Miller, No. 2½ Rock'd univ. \$ 800.  
Boring mill, 10" Niles vert. 4,500. | Millers, No. 1½ American pl. 775.  
Boring mill, No. 2 Barret, 24x15 1,600. | Miller, No. 1½ American univ. 1,000.  
Drill press, 45" upright, back geared, power feed. 300. | Radial drill, 6' Bausch-H. pl. 650.  
Grinder, No. 60 Heald cylinder 1,250. | Shaper, 16" Barker, b. g. crank 450.  
 | Shaper, 24" Barker, b. g. crank 625.

Many other bargains. Send us your requirements.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The W. M. Pattison Supply Co.,** - - - **Cleveland, Ohio**  
**Main Office, Show Rooms and Warehouse.**

Boring mill, No. 1 Cleveland, horizontal, complete.  
 Drill, Hofer, 26" sliding head, b. g., p. i.  
 Drill, 3½" Dreses plain radial.  
 Grinding machine, universal, Webster & Perks No. 1, 10"x30".  
 Grinding machine, universal, Bath No. 1.  
 Lathe, 14"x 6" Bradford, c. r.  
 Lathe, 14"x 6" Rockford, d. b. g., quick change gear and c. r.  
 Lathe, 16"x 8" Flather, q. c. g., d. b. g., with c. r., taper, draw-in attachment and relieving attachment.  
 Lathe, 18"x 8" Bradford, quick change, d. b. g. and c. r.  
 Miller, universal, No. 3-B Hendey, complete.  
 Miller, plain, No. 3-G. H. Hendey, complete.  
 Miller, vertical, No. 5-C Becker, complete.  
 Miller, plain, No. 0 Brown & Sharpe, with pump.  
 Planer, 26"x26"x8" Cleveland open side, two heads.  
 Shaper, 17" Averbek, b. g., complete.  
 Shaper, 15" Potter & Johnston, complete.  
 Shaper, 24" Potter & Johnston tool-room, complete.  
 Turret lathes, universal, No. 2-B Foster (2).  
 Turret lathes, universal, No. 1-B Foster (2).

This is a partial list. We have a complete assortment on hand.  
 Write us and state your requirements. Correspondence solicited.

### FOR SALE BY

**Chas. Molitor Machinery Co.,** **118-124 S. Clinton St., Chicago**

Special Bargains—Pre-War Prices.

#### MILLING MACHINES.

No. 2 Rockford univ., vert. attach.	No. 3 Ingersoll vertical.
No. 1½ B. & S., heavy, single p. d.	No. 5 Becker, vert. rot. table.
No. 2 B. & S. plain, single pulley.	Knights, 3 different sizes.
No. 2 Brown & Sharpe vertical.	Transit heavy production (2).

#### PRESSES.

New Doty b. g., 24" throat.	No. 5 Toledo, plain.
No. 48 Perkins, b. g.	Consolidated, bench (3).
No. 2 Moore screw press.	7"x36" Corrugating machine.
No. 1½ Consolidated, plain (2).	

#### PLANER AND SHAPERS.

48"x12" American, 2 heads.	16" American, b. g.
14" Steptoe.	20" Smith & Mills.

#### LATHES.

36"x14" Niles Bement, q. c. g.	18"x11" Reed, tap. attach.
26"x12" Niles Bement, q. c. g. (2).	18"x 6" Hendey, q. c.
24"x10" American, q. c. g.	16"x 6" Hendey, q. c.
24"x10" Ffield.	14"x 6" Lodge & Shipley, q. c. g.hd.
20"x 8" Monarch, q. c. g.	

#### RADIALS AND DRILL PRESSES.

6" Reed Prentice, reverse attach.	25" Kokomo high speed.
32" Cincinnati, reverse attach.	24" Henry & Wright high speed.
24" Foote-Burt heavy.	4 spdl. Henry & Wright, ½" cap.

#### MISCELLANEOUS.

Air compressor, 8"x9 Ingersoll, belt drive.	Keyseater, No. 2 Davis.
Band saw, metal, 30".	Keyseater, No. 3 Becker.
Bolt cutters, 3" & ½" Acme, 2 sp.	Metal separator, Milwaukee.
Gasoline hoist, Sembrow.	Rollers, 6"x40".
Gear cutter, No. 5 Brown & Sharpe.	Rollers, 12"x10".
Grinder, Van Norman ball bearing.	Shear, circular, 48".
Carload of 16"—20" Drill Presses, Kick Presses, Small Tools, Chucks.	Shears, pwr. sq., 72" and 30", 16" cap.

Milling Machines, Vises, etc. We can save you some money.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Russell Machine Co., 28th St. & A. V. R. R., Pittsburgh, Pa.**  
LATHES.

60"x26" Gleason, triple geared.  
48"x32" N. B. P., triple geared.  
48"x28" Niles, c. r.  
48"x26" Pond, triple geared.  
28"x12" Boye & Emmes, q. c. g., d. b. g.  
26"x12" Pittsburgh, dbl. b. g.  
26"x20" Putnam, b. g., c. r.  
26"x10" Walcott, q. c. g.  
24"x16" Johnson lathe.  
24"x12" New Haven.  
24"x11" Reed, c. r.  
18"x10" LeBlond, motor drive.  
18"x6" Bullard, c. r., b. g.

18"x8" Sidney, q. c. g., d. b. g.  
18"x8" Rahn-Mayer-Carpenter.  
16"x6" Columbus, q. c. g., new.  
15"x8" Schellenbach, d. b. g., h. s.  
14"x6" Lodge-Shipley, q. c. g.  
9 1/2"x4" South Bend, c. r., h. s.  
3"x36" J. & L. turret.  
24"x6" Gisholt turret, 6 1/2" h. s.  
24"x6" Gisholt tur., 6 1/2" h. s., m. d.  
10"x4" Blount speed lathe.  
11"x3" Blount speed, (12).  
14"x5" American speed lathe.  
18"x7 1/2" Wood lathe.

### PLANERS AND SHAPERS.

24"x24"x8 Chandler planer, 1 head.  
48"x48"x22" Pond planer, 4 heads.  
72"x56"x12" Betts planer, 2 heads.

14" G. & E. sgl. grd. shaper.  
24" Cincinnati b. g. cr. shaper.  
24" Stockbridge, b. g., cr.

### DRILLS AND BORING MILLS.

20" Barnes "camel back".  
20" Champion, new, pl. w. & l.  
20" Silver, new, b. g., p. f.  
30" Gould-Eberhardt, b. g., upright.  
30" Prentice and 36" Snyder, b. g.  
40" New Haven, b. g. drill.  
3", 4", 6" & 7" Prentice radial drills.  
6", 6 1/2" & 8" Pond radial drills.  
3" Fosdick, 9" Baush radial drills.  
Burke Nos. 0 & 1 sensitive drills.  
Champion post drills, 1/2" & 1".

30" Bullard and W. & S. bor. mills.  
36" Bridgeport boring mill.  
42" Bullard rapid production.  
42" & 50" Bullard bor. m., 2 heads.  
62" Colburn boring mill.  
72" Pond boring mill, 2 heads.  
90" Niles boring mill, 2 heads.  
7" & 8" Betts, 2 heads.  
16" Pond boring mill, 2 heads.  
10" Niles boring mill, 2 heads.  
10/16" Betts boring mill, 2 hds.

### PUNCHES, SHEARS, PRESSES AND ROLLS.

L. & A. size C. multiple punch.  
50" throat Reade sgl. end, punch and shear; massive construction.  
Cleveland punch & shear, 18" throat.  
No. 6 L. & A., 24" throat.  
No. 45 Buffalo punch, 18 1/2".  
No. 4 Doeiger & Kirsten alligator shear, cap. 4 1/2" round soft steel.  
Garrison m. d. alligator shear, 18" knife, cap. 3" square, 36000 lbs.  
Niagara plate shear, 87"x1 1/2".  
Morgan plate shear, 96"x1" thick.  
Garrison plate shear, cap. 3"x81" m. d.  
Waterbury-Farrel rotary sh. 14" thr.

Mesta plate shear, cap. 4"x156".  
Carlin alligator shears, 24 cap.  
Niagara pr. sq. shears, 36"-72"-96".  
Schatz punch and shear, 7 1/2" throat.  
500 ton steam hydraulic press.  
300 ton horiz. hyd. wheel press.  
No. 56 dbl. housing knuckle press.  
Stiles No. 3 inclinable press.  
Bliss No. 18 o. b. i. power press.  
Bliss No. 76 1/2 s. s., d. g. press, 8" str.  
Corry Mch. Co. press, 12" stroke.  
Straight-side punch press, 4" str.  
Ferracute foot presses.

### MISCELLANEOUS.

Air compressor, No. 0 Au-To 3"x4".  
Air compressor, Caldwell d. c. 3 1/2"x4".  
Air compressor, 8"x8" hor. b. d.  
Air compressors Bury 10x10.  
Band saw, Greaves-Klusman 36".  
Band saw, Kane-Roach 30".  
Blower, Sturtevant, No. 4, volume.  
Blowers, Buffalo No. 7-8 vol.  
Blowers, Root No. 5 rotary.  
Bolt cutter, Landis 1 1/2".  
Brazing table, all iron, 17"x29 1/2"x31".  
Bulldozers, Nos. 4 & 6 Williams-W.  
Cold saw, Wagner, size 18 type 3.  
Corner treader, American No. 65.  
Crane, 10" I-beam, 12'3" span.  
Cranes, portable 2 & 2 1/2 ton.  
Engine, gas, 18 h. p. Fenner.  
Forge, No. 41 Champion new.  
Grinder, Greenfield cutter & tool.

Grinder, Diamond No. 3 wet tool.  
Grinders, Plymouth Nos. 13, 14, 17.  
Hammers: 1500 lb. Bement steam drop; 2500 lb. Chambersburg dbl. leg; 2000 lb. B. M. sgl. leg steam forg.  
Hammers, 80 & 100 lb. Bradley.  
Hoist, contractor's steam, with 8 h. p. boiler & 5 h. p. engine.  
Millers, pl., Garvin No. 12, Cinti. No. 3.  
Paper cutter, Golding 36".  
Pipe machines, 3", 4", 8".  
Polishing stand, d. end, 42"x1 1/2" arbor.  
Polishing stand, Cuyahoga dbl. end.  
Ripsaw, table, 49"x30".  
Roll lathe, United Engr. 26"x18".  
Saw, West Haven, hack, 6"x6".  
Slotter, Niles 15".  
Straightening rolls, 54x10 Cleveland.  
Wiring machines, Pexto, bench.

## SECOND-HAND MACHINERY

### FOR SALE BY

**McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.**

"Machinery is our Middle Name"

Air compressors, 4x4, 6x6, 8x8.  
Boring machine, Rockford horiz.  
Bulldozer, W. & W. No. 24.  
Cold saw, Lea-Simplex No. 18.  
Cut-off mchs., Davis 6", H. & R. 4".  
Drill presses, all sizes, single and multiple spindle.  
Gear hobbors, No. 3 Farwell and Garvin double spindle sprocket.  
Gear shaper, 36" Fellows.  
Grinders, cylindrical, surface, knife, univ., centerless, emery stands.  
Lathes, large stock both new and good used, all sizes.

Keyseaters, LaPointe, Davis No. 2.  
Milling machines: Bristol, Brown & S., Becker, Hendey, Kempsmith, Steptoe, Ohio, plain and universal; Becker s. d. vertical; Briggs B-72".  
Planers, 24"x24"x6" Ohio and Am.  
Presses, Niagara, Swaine, Ferracute, Bliss straight and inclinable.  
Rivet spinners, vertical and horiz.  
Screw machines, Foster, P. & W.  
4 Gridley auto. 4 spindle 24".  
Shapers, 16, 20, 24" Cincinnati b. g., 24" Gould & Eberhardt, 16" Hendey.  
Wood-Work'g & Sheet Metal Tools.

### FOR SALE BY

**Tubor, Velick & Co., Inc., Lake & Desplaines Sts., Chicago, Ill.**

**Telephone: Monroe 4199**

New and Used Machines.

#### PUNCH PRESSES.

No. 604 Bliss, (4).  
No. 4 Verdin Kappes, b. g.  
No. 3 V. & O.

No. 33 Consolidated.  
No. 3 Am. Can. dbl. action (2).  
No. 25 Niagara.

#### DRILL PRESSES.

20" Canedy-Otto, (20).  
20" Barner, (20).  
36" sliding hd. (3), different makes.  
20" to 30" Silver and Rockford (20).  
Bench drills, with chucks (25).

3-spindle Hoefer, (4).  
3" radial, Canedy-Otto.  
4" radial, Niles.  
4" radial, Mueller.

#### MILLING MACHINES.

No. 15 Garvin plain.  
No. 3 Cincinnati universal.  
No. 9 Kempsmith.

Fox millers, power feed, (15).  
Bristol millers, plain, (15).

#### SHAPERS.

18" Barker, b. g. crank.

24" Gould & E., b. g. crank.

#### LATHES.

Bench lathes, (4).  
12"x 5' Davis, (2).  
16"x 8' Robinson.  
16"x 8' South Bend.  
16"x 6' Rahn-Carpenter.  
16"x 8' Canedy-Otto.  
16"x10' Hamilton.

18"x 7' Lehmann, q. c.  
18"x 8' Bradford.  
18"x 8' Sidney.  
18"x10' American, (3).  
20"x 8' Hamilton, q. c.  
20"x14' Le Blond.  
22"x18' Wickes.

#### GRINDERS.

No. 1 Brown & Sharpe universal.  
No. 14 Besly, disc, (3).

No. 15 Besly, disc.

#### POWER HAMMERS.

25-lb. capacity, Bradley.

100-lb. capacity, Bradley.

#### SCREW MACHINES.

No. 2 Smurr & Kamen.  
No. 3 Smurr & Kamen, (8).

Foster screw machine.

#### MISCELLANEOUS.

Band saws, 20-26-32".  
Folder, 36".  
Jointers, 12" and 16".  
Motors, all sizes, a. c. and d. c.  
Paper box stitcher, Latham No. 2, new  
Paper balers, (100).

Planer, 36"x36"x14' Niles.  
Shear, rotary, 60" Pettingell.  
Shear, 52" Niagara power square.  
Shear, 11' power square.  
Toilet sets, Low-down, 100 sets.  
Trucks, 3 lifting.

Tons of leather belting. Pulleys, shafting and hangers.

## SECOND-HAND MACHINERY

### FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York

Located at our various factories and stores.

#### LATHES.

14"x 8' Whitcomb, q. c.	32"x12' Pond, c. r.
17"x 6' & 8' LeBlond geared head.	36"x20' Pond, 220 volt, motor, d. c.
20"x10' LeBlond, q. c.	42"x20' Niles, triple geared.
24"x10' Whitcomb, q. c.	48"x30' Niles, triple geared.
26"x10' Pond, 220 volt motor, d. c.	54"x28' American, 220 volt motor, d. c.
24"x24' Niles, c. r.	
28"x12' Pond, c. r.	

#### TURRET LATHES.

No. 6-A P. & J., 220 volt motor, d. c.	2"x24" Jones & Lamson, cone head.
1", 2", and 2 1/2" P. & W.	24", 28", & 34" Gisholts.
2"x24" W. & S. hollow hex.	32" Conradson American.

#### PLANERS AND SHAPERS.

14" & 20" G. & E. shapers.	36"x36"x 8' to 25' belt drives.
20" Stockbridge shaper.	42"x42"x14' Bement, 4 heads.
24"x24"x 6' Powell.	48"x48"x20' Bement, 4 heads.
24"x24"x 6', 8' and 10' Whitcomb.	60"x60"x14', 20' & 24' Niles.
26"x26"x 6' Gray.	72"x72"x12' Bement, 4 heads.
30"x30"x 6' & 10' Ponds, 2 heads.	72"x72"x20' heavy Ridgway, reversing motor.
30"x30"x12' Pond, reversing motor.	10'x10'x36' Betts, 4 heads.
36"x36"x16' Pond, heavy reversing motor.	

#### MILLERS AND GEAR CUTTERS.

Nos. 1 1/2 and 2 Brown & Sharpe universal, cone type.	No. 5 Brown & Sharpe vertical, cone type.
No. 2-A Brown & Sharpe universal, all geared.	Nos. 3, 4 & 6 B. & S. gear cutters.
No. 2-B B. & S. plain, all geared.	15" Gleason bevel gear generator.
Nos. 4 & 5 B. & S. plain, cone type.	6"x48" & 80" P. & W. old style thread millers, also 132" long.

#### DRILLING MACHINES.

28", 32" and 40" sliding head drills.	4' & 6' universal radials.
3', 4', 5', 6' plain radials.	12-spindle P. & W. No. 13 multiple.

#### GRINDERS.

No. 8 Higley saw grinder.	12"x36" Cincinnati, plain.
8"x30" Fraser universal.	12"x40" No. 3 Brown & Sharpe universal.
10"x72" Norton plain.	

#### BORING MACHINES.

28" Bar 4' W. & S. horizontal.	3" Bar No. 1 Lucas horizontal.
24" Bar 5' Binns horizontal.	4 1/2", 5" & 6 1/2" Niles floor borers.
2 1/2" Bar 6' & 8' Bement horizontals.	42" and 51" Niles vertical mills.
4 1/2" Bar 8' Niles horizontal.	60" Bement vertical mill.
4 1/2" Bar 9 & 10' Bement horizontals.	10' Niles, 220 volt motor, d. c.

#### MISCELLANEOUS.

Air compressors, 215', 535' and 835' capacity.	Graduating machine, LeBlond.
Blowers, No. 10 Sturtevant; No. 70 Buffalo.	Hammer, 750 lbs. Sellers.
Crane, 3-ton Niles, 14' 3" span, d. c.	Hot blast apparatus, 120" fan engine, Sturtevant.
Crane, 20-ton 48' span, Sellers, d. c.	Motors, 5 to 100 h. p., d. c.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.	Pump, 500 gal., steam drive.
Generator set, 100 k. w., d. c., and engine.	Saw, 8" rounds, Higley.
	Screw shaver, No. 2 P. & W.
	Separator, oil, No. 1 American.
	Slotter, 6" Bement.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### Scott-Bansbach Machinery Co.,

32 N. Clinton St., Chicago

Punch, sgl. end, 30" L. & A., 1 1/2" thru 1", mtr. dr. with 10 h. p., 220 v., a. c. mtr.  
Automatic, 4-spindle 1 1/2" Gridley.  
Boring mill, 30" Colburn vertical, with turret head.  
Boring mill, 36" geared hd., adjustable rail, single turret head.

Drill, No. 310 Baker hvy. duty, 3" cap.  
Grinder, No. 2 B. & S. surface.  
Grinder, univ., 10x32 Landis No. 1 1/2.  
Miller, No. 2 Rockford, grd. hd., pl.  
Planer, 38"x38"x10' Gray, 1 head.

### FOR SALE BY

#### The H. A. Smith Mchy. Co.,

501 E. Water St., Syracuse, N. Y.

Air compressor, 16x8 Ingersoll-Rand, class ERI.  
Gear generators, bevel, 8" Gleason (2).  
Gear generators, bevel, 18" Gleason (6).  
Grinders, plain, No. 11 Brown & Sharpe, late style (4).  
Grinder, face, 84" Diamond, with 30 h. p. motor.  
Grinder, universal tool and cutter, Norton No. 1.  
Lathe, 14"x8' Monarch.  
Lathes, 16"x8' Monarch (5).  
Lathe, 16"x8' Walcott.  
Multi automatic, serial number above 10500.  
Millers, pl., No. 2 Kempsmith (2).

Miller, univ., No. 3 Kearney & T.  
Pinion blockers, 2-sp. Gould & E., serial number above 3100 (3).  
Pinion blocker, 8-sp. Gould & E., serial number above 3300.  
Profiler, No. 4 Garvin, pwr. rty. tbl.  
Punch press, Rockford No. 316, grd.  
Punch press, Jordan No. 3, fly wheel.  
Radial blast sand blast barrel, 36x44 No. 3 Standard.  
Screw machine, hand, No. 0 B. & S.  
Screw machine, 4-spindle automatic, 2 1/2" National Acme.  
Screw mchs., Warner & Swasey No. 4, with air chuck equipment (6).  
Turret lathes, 3x26 Jones & L. (3).  
Turret lathes, univ., 16" Acme, friction head, chasing bar (2).

### FOR SALE BY

P. Prybil Machine Co., Inc. 512-524 W. 41st St., New York, N. Y.

#### LATHES.

14"x 6' stud and bolt, P. Prybil.  
16"x 6' polishing, P. Prybil.  
20"x12' safety stops, taper attachments. Lodge & Shipley.  
24"x14' q. c. g., Lodge & Shipley.

30"x16' q. c. g., Pond.  
30"x32' back geared, shaft lathe.  
36"x12' q. c. g., Lodge Davis.  
40" raised 50"x14', q. c. g., Pond.

#### MILLING MACHINES.

64"x16" table, spindle cone, Cinn.

68"x16" tbl., s. box and pump, Cinn.

#### DRILL PRESSES.

9" Pulley drilling & tapp. P. Prybil.  
12" post drill, 11 1/2"x18" table, hand feed, P. Prybil.  
12" sensitive, 11"x11" table, Washburn Shops.  
12"x4 spindle, 36"x12" table, Reed.  
12 spdl. mult., 15"x24" tbl. Baush.

17" back geared, Aurora.  
20" adjustable table, Reed.  
30" sliding hd., adjustable tbl., Pond.  
30" sliding hd., power feed, Pond.  
48" arm radial, 37"x8' bed, univ.  
72" arm radial, 4' 10"x8' 6" bed, Warren.

#### PULLEY LATHES.

36" dia. x24" face, 2 heads, Niles.

50" dia x30" face, 2 heads, Niles.

#### PLANERS AND SHAPERS.

16" stroke, self-feed, Steptoe.  
24" stroke, friction gear, Hendey.  
26"x36"x 6' one head, Pond.

36"x36"x 6', one head, Pond.  
48"x48"x16' open side, Detrick & Harvey.

#### BORING MILLS.

50" pulley borer, power feed, Niles.  
60" 2 heads, 84" table, Niles.

84" 2 heads, 67" table, Niles.  
84"x36"x3" bed horiz. borer, B. & S.

#### MISCELLANEOUS.

Air compressor.  
Arbor presses, various sizes.  
Broaching machine.

Electric drills; air riveters.  
Forges and blowers.  
Grinders, various sizes.

## SECOND-HAND MACHINERY

### FOR SALE BY

**W. P. Little Co.,**

**1616 Columbus Road, Cleveland, Ohio**

8"x108" Lo Swing.  
20"x 8" Rahn-Mayer, c. r.

**LATHES.**

26"x 9' Bridgeford, d. b. g., & q. c. g.  
30"x10' plain turning.

**SHAPERS.**

20" Kelly, back geared.

**TURRET LATHES.**

No. 4 B. & O., b. g., f. h. & p. f.  
14" Davis & Egan.

16" Juengst, friction.

No. 2 Warner & Swasey.  
16" Windsor.

**MISCELLANEOUS.**

Blower, No. 8 Sturtevant.  
Bolt cutter, 1 1/2" Reliance.  
Broach, No. 3-A Lapointe.  
Milling machines, U. S., hand, (2).

Riveter, 1/2" Shuster.  
Shear, foot, 42" Niagara gap.  
Slotter, 8" rotary table.  
Spline milling machine, 4".

We buy Used Machinery. What have you to sell?

### FOR SALE BY

**The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.**

**ENGINE LATHES.**

12"x 4' Porter-Cable, c. r., q. c. g.,  
pan bed, (4).  
14"x 6' Hamilton.  
13"x 5' Willard, c. r.  
14"x 6' Prybil, stud.

15"x 6' Sebastian, c. r., geared hd.  
16"x 6' Reed, r. and f.  
18"x 6' Blaisdell, p. r. and t. a.  
24"x14' Boye & Emmes, c. r., 3-step  
cone.

**TURRET LATHES AND**

**SCREW MACHINES.**

14" Lodge & Davis, plain head.  
24" Davis turret boring and chuck-  
ing lathe, with forming rest.  
22" Lodge & Shipley heavy duty  
turret boring lathe.  
1 1/2" Acme screw mche., p. f. to tur., (2).  
No. 2-A Warner & Swasey g. h.  
turret lathes, (2).  
No. 3-A Warner & Swasey g. h.  
turret lathe.

26" Gisholt heavy duty turret lathe.  
16" Warner & Swasey, plain head,  
with air chucks (4).  
2"x24" Jones & Lamson g. h. flat  
turret lathe.  
No. 00 Brown & Sharpe auto, (4).  
No. 0 Brown & Sharpe auto, (6).  
No. 2 Brown & Sharpe auto, (3).  
1/2" to 1" Model A Cleveland auto, (2).

**MILLING MACHINES.**

No. 1 Rockford, hand, p. f.  
No. 15 Garvin plain, b. g.  
No. 22 Garvin, vertical spindle.  
No. 1 Cincinnati plain.

Valley City, pl., with dividing head.  
No. 6 Becker, vert., rotating table.  
12" Pratt & Whitney, horiz., auto.

**GRINDERS.**

No. 3 Brown & Sharpe, universal.  
No. 1 Detroit Centerless.  
No. 10 Cochrane-Bly auto. bench  
saw filing machine.  
No. 1 Brown & Sharpe, univ., (2).

Type "DE" Hisey-Wolf internal.  
Gisholt tool grinder.  
No. 14-16 Besly, wet ring wheel.  
6"x18" Landis, pl., single pulley dr.  
No. 11 B. & S. plain grinders (2).

**HAMMERS.**

Coffman post pwr. dr. hammer 25 lbs.

Cady belt drop hammer, 100 lbs.

**METAL CUTTING TOOLS & SQUARING SHEARS.**

Excelsior power hack saw.  
12" Burke metal cold saw.

Higley cold saw.  
No. 154 Higley cold saw.

**PUNCH PRESSES.**

No. 264 Consolidated, geared, dbl.  
action cam drawing.

No. 69-N Bliss, sgl. action cam, grd.  
No. 83 Bliss, straight side, geared.

**GEAR CUTTERS.**

26" No. 3 Brown & Sharpe auto., (2).  
60" Eberhardt, spur.

No. 13 Brown & Sharpe auto., (2).

**MISCELLANEOUS.**

Boring mche., 22" swing, Star horiz.  
Boring mill, 34" Colburn.  
Brake, 36" P. S. & W. cornice brake,  
20 gauge capacity.

Drills, sgl. sp. upright sens, (2).  
Fender equip., Yoder, complete.  
Planers, 22"x22"x5' Putnam, 1 hd., (3).  
Polishing lathes, City Machine Co.

## SECOND-HAND MACHINERY

### FOR SALE BY

**E. L. Esley Machinery Co., 551 557 Washington Blvd., Chicago, Ill.**

Air compressor, No. 3 Usaco, 2 stage.  
Bolt cutter,  $\frac{1}{2}$ " Acme, single head.  
Bolt cutter,  $\frac{1}{2}$ "—1" Wiley & Russell.  
Boring mills, 42" & 60" Bullard vert.  
Boring mill, 60" Betts horizontal.  
Brake, power, 8' Dreis-Krump, 440  
volt motor attached.  
Drill, rail, No. 7-D Moline 'Hole Hog'.  
Drill, No. 17-D Moline 'Hole Hog'.  
cap. 4—1 $\frac{1}{2}$ " holes or 8— $\frac{1}{2}$ " holes,  
soft steel.  
Drills, 14" Rockford, gd.  
Drill, No. 310 Baker Bros. heavy  
duty, 24" swing.  
Drill, 12", 1-spd. Allen, h.s., b.b.  
Drill, No. 0 Avey, h.s., b.b.,  $\frac{1}{2}$ " cap.  
Drills, 14" 3-spd. Allen, h.s., b.b. (3).  
Drills, 14" 4-sp. Allen, h.s., b.b., (10).  
Drills, 14" 6-spd. Allen, h.s., b.b. (5).  
Drill, No. 1, 6-spd. Avey, cap.  $\frac{1}{2}$ ".  
Gear cutter, No. 3 B. & S. 26"x8" auto.  
Gear miller, No. 1 $\frac{1}{2}$  Bilton auto.  
Grinder, surface, No. 2 W. & M.  
Grinder, 10"x24", No. 1 B. & S. univ.  
Grinder, 10"x72", No. 16 B. & S. pl.

Grinders, 6"x32" Norton pl. cyl. (2).  
Grinder, 15"x15"x6" Norton open-  
side surface.  
Hammer, 800 lb. Massillon.  
Lathe, multi-cut, No. 2 Reed Prentice  
auto., gd. hd.  
Millers, hand, No. 1 Standard (2).  
Miller, No. 4 $\frac{1}{2}$  Becker-Brainerd pl.  
Miller, G. & E. plain, table 54"x12".  
Miller, No. 4-B Becker vert.  
Miller, No. 5-B Becker vert.  
Millers, No. 4 Hendey, Lincoln  
type (20).  
Millers, hand, No. 6 Whitney (25).  
Pipe mch., No. 7, 2" Jarecki, dies, etc.  
Pipe mch., 2 $\frac{1}{2}$ " to 8" "Forbes Pat."  
C. & C., power, 440 volt motor  
att.; has dies, tools, etc.  
Planer, 36"x36"x12" W. & P., 2 hds.  
Planer, 42"x42"x10" Grav, 1 head.  
Screw machines, Nos. 2 & 4 W. & S.;  
1", 1 $\frac{1}{2}$ ", 1 $\frac{1}{2}$ ", 3" Cleveland auto.;  
Nos. 3, 4 & 6 Foster.  
Shapers, 14" Hendey (2).  
Tappers, No. 1 Garvin (2).

### FOR SALE BY

**The O'Brien Machinery Co.,**

**113 N. Third St., Philadelphia, Pa.**

Bolt cutter, 1" Acme.  
Bolt cutter, 3" Acme, single head.  
Bolt cutter, 4-sp. Webster & Perks.  
Drill, 5" spd. Baker Bros. hvy. duty.  
Drill, Avey Hi-speed sensitive with  
motor attached.  
Drill, Allen 5-spindle, high speed.  
Drill, Allen 6-spindle, high speed.  
Drills, Moline heavy duty hog, (2).  
Drill press, 25" Buffalo.  
Gear cutter, 36" Whiton.  
Grinder, 6"x32" Norton pl. grinder.  
Grinder, No. 1 Norton universal.  
Grinder, No. 2 Norton universal.  
Grinder, No. 2 Acme univ. tool & c.  
Grinder, No. 14 Besly disc, with  
press.  
Grinder, 2 Wilmarth & Morman hand  
feed surface grinders.  
Hammer, 40 lbs. Williams-White  
Yeakley, belt drive.  
Hammer, 650 lbs. Williams-W. Y.  
Hammer, 800 lb. Erie City, single  
frame steam.  
Hammer, 800 lbs. Bement-Miles,  
double frame steam.  
Hammer, 1200 lbs. Bement-Miles,  
double frame steam.  
Lathe, 8"x108" Fitchburg Lo-Swing.  
Lathe, 16"x8" Cisco.  
Lathe, 16"x8" Rahn-Larmon.  
Lathe, 18"x9" Lehman.  
Lathe, 18"x10" Monarch.

Lathe, 20"x9" Lehman.  
Lathe, 20"x12" Monarch.  
Lathe, 20"x14" Powell.  
Lathes, 21"x30" LeBlond, motor dr.  
Lathe, 23"x12" Blaisdell.  
Miller, No. 25 Bilton plain.  
Miller, No. 2 Brown & S., univ.  
Miller, No. 2-AU Garvin universal.  
Miller, No. 7 Becker Lincoln type.  
Miller, No. 3 $\frac{1}{2}$  Fox.  
Nut tapper, 6-sp. 1 $\frac{1}{2}$ " Acme semi-auto.  
Pipe machine, 6" Stoecker.  
Pipe machine, 4" Jarecki.  
Pipe machine, 4" Oster.  
Pipe mch., 4" Oster, motor driven.  
Pipe mch., 4" Jarecki, motor driven.  
Pipe machine, 2" Oster.  
Pipe machine, 8" Curtis & Curtis.  
Planer, 50"x50"x18" Betts.  
Presses, approximately 50, assorted  
sizes, Waterbury-Farrell Foundry,  
weights approx. 2,000 to 5,000 lbs.  
Presses, Toledo No. 83 straight  
sided power, 34" stroke, (7).  
Riveter, 8"x8" Vulcan.  
Saw, 6" Nutter & Barnes circular.  
Saw, No. 15 Lea-Simplex circ. metal.  
Screw machines, No. 2 Brown &  
Sharpe, wire feed.  
Turret lathe, No. 64 Bardon & Oliver,  
wire feed, cabinet base.  
Turret lathes, No. 12 $\frac{1}{2}$  G Garvin, 2"  
wire feed capacity (4).

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Reeve-Fritts Company, 37 So. Desplaines St., Chicago, Ill.**

Drill, 14" H. & R., b. b.  
Drill, 23" Hoefer, b. g., p. f.  
Drill, No. 2 BD Dumore.  
Drill, 14" Champion.  
Drill, 16" 4 spindle Rockford.  
Grinder, No. 2 AG Dumore.  
Grinder, No. 1 LaSalle, surface.  
Lathe, 14"x6" Hamilton, new.  
Lathes, 15"x 6" Rockford.

Lathe, 16"x 8' Flather.  
Lathe, 18"x 8' L. & S. pat. head.  
Lathe, 26"x12' Bridgford.  
Lathe, 11"x 4' Wells, speed.  
Miller, No. 0 Bristol, hand.  
Miller, Hendey, Lincoln type.  
Planer, 31"x31"x14' Powell.  
Screw mch., No. 1 W. & S., 8" cap.  
Screw mch., No. 2 Foster, 1 1/16" cap.

### FOR SALE BY

**Herman L. Winterer,**

**943-53 N. Front St., Philadelphia, Pa.**

#### LATHES.

43"x17'4" Bement-Miles.  
42"x16" Niles taper att.  
37"x14" Johnson d. b. g., q. c. f., t. a.  
32"x12" Pittsburgh, heavy duty, q. c. g.  
26"x16" 6" American, q. c. g.  
27"x12" Bullard.  
26"x11" Wickes, q. c. g.  
26"x10" Niles, q. c. g.  
25"x14" Hendey, q. c. g., taper attachment, oil pan, (2).  
24"x14" Porter.

21"x8" LeBlond.  
20"x8" 6" Walcott, d. b. g., q. c. g., (2).  
20"x 8" Whitcomb Blaisdell, q. c. g.  
20"x10" 6" American pat. hd., q. c. g.  
18"x 8" Prentice, q. c. g.  
19"x10" Draper, patent head.  
18"x 7" Chard, d. b. g., semi q. c. g.  
18"x6" to 8" lathes, (6).  
16" Lathes, (10).  
14" Lathes, (19).  
And many others.

#### TURRET LATHES.

34"x29" Pond, triangle.  
3x36" Pratt & Whitney, hollow hex.  
20"x7" 6" Pratt & Whitney, back grd.  
19"x7" Fay & Scott, back grd.  
19"x6" American ext. gap, bk. grd.  
No. 22 Garvin Monitor.

17"x6" Warner & S., bk. grd., (2).  
16"x6" Johnson, back grd.  
No. 5 Bardons & Oliver, back grd.  
No. 3 Bardons & Oliver back grd.  
14"x5" 3" Pratt & Whitney, (2).  
No. 3 Foster Kimball.

#### DRILL PRESSES.

5' Bickford radial.  
40" Barnes horizontal radials, (2).  
36" Bickford radial, circular base, motor driven.  
14" 6-spindle Allen sensitive.  
14" 4-spindle Allen sensitive.

36" b. g., sliding head drill.  
26" Hoefer, tapping attachment.  
20" Barnes, geared head.  
20" Champion, new, (6).  
Plain drills, all sizes.  
Drill presses, assorted sizes.

#### MILLING MACHINES.

38"x6" Ingersoll horizontal slab.  
No. 5 Cincinnati, table 9'x50'4".  
No. 15 Garvin, table 12x42".  
No. 3 Becker Brainard, table 12x40".  
No. 3 Hendey-Norton, q. c. g.  
No. 0V Brown & Sharpe plain, (2).

No. 2B heavy, Brown & Sharpe, single belt drive, q. c. g.  
Whitney hand miller.  
No. 27 Industrial Works, Lincoln type, table, 7x27".  
Gooley & Edlund, 7'x46" table.

#### PLANERS AND SHAPERS.

49"x48"x16" Pond planer, 3 heads.  
30"x30"x8" Putnam planer.  
26"x26"x 6" Hendey planer.  
48" Morton draw-cut shaper.

39" Pedrick & Ayer, open side.  
26" Cincinnati.  
16" Gould & Eberhardt shaper.  
14" Warren shaper.

#### MISCELLANEOUS.

Boring mill, 100" Sellers, vert. dbl. hd.  
Boring mill, car wheel, 60" Newton.  
Boring, drilling and milling machine, 17' Bement Niles horizontal.  
Grinder, 13'x5' Landis universal.  
Grinder, disc, No. 17 Besly.  
Grinder, disc, No. 1 Besly.  
Hammers, 60 lb. Bellefonte upright; 2.  
Keyseaters, 18" stroke Morton, (2).

Keyseater, Miits & Merrill No. 5.  
Punch presses, all sizes, (55).  
Punch & shear, Industrial Wks. d. e., capacity 4" in 1", squaring 4"x6".  
Slotter, Newton, 26"; cir. table.  
Slotter, Newton, 18"; cir. table.  
Slotter, Bement 10"; cir. table.  
Tooth round'g mch., Fuchard & S.

Large assortment of General Machinery. Send for Complete List.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Norton Broadway Machinery Co., 238 Broadway, Cincinnati, O.**

Grinder, universal, No. 3 Brown & Sharpe.....	\$ 750.
Lathes, 26"x18" Bullard screw cutting, motor driven, (2), each.....	900.
Lathe, 52" McF. & N., 16 1/2" centers, old style.....	650.
Planer, 24"x24"x6" Gray.....	650.
Planer, 36"x36"x14" Belmer, heavy, 3 heads.....	1,500.
Radial drill, 4" Cincinnati-Bickford, gear box.....	850.

### FOR SALE BY

**A. M. Stoehr Machinery Co., 844-846 North Wells St., Chicago, Ill.**

Blue printing and drying machine, continuous, 42" cap., 220 volt, d. c.		Milling machines, Nos. 1 and 2 universal, also 15 other sizes plain.
Bolt cutter and tapper, 1/2" cap.		Planers, 26x26x16", two heads.
Boring mill, horizontal, 3" bar.		Planer, 28x28x8" Gray 1 head.
Drill presses, new, 20", back gear, power feed, each \$120.		Planer, 30x30x12" Gray, 1 head.
Drill press, 4" radial.		Planer, 30x30x12" Lodge & D. 1 head.
Drill pr., 2-sp. Moline "Hole Hog".		Presses, No. 4 Robinson, Nos. 3A & 4 American Can. Nos. 30, 45 & 70
Gear cutter, Belton No. 10.		Crosby, No. 15 Wold.
Gear cutter, 24" Gould & E.		Punch & shear, No. 13 W. & W. Co., 38" throat, arct. jaw, 1 1/2" in 1"
Gear cutter, 60" Gould & E.		Screw machines, No. 1 Pratt & Whitney, Nos. 52 and 53 Acme auto., 1 1/2" and 2" Cleveland sgle. spdl., 2 1/2" Gridley, sgle. spdl.
Grinder, Heald, piston ring, mag. ck.		Shears, bar splitting and square.
Grinder, 3x18 Norton.		Tapping machine, Tuttle, 1/2" cap.
Grinder, No. 75 Heald.		Telephone signal call system.
Grinder, 12"x48" Modern.		
Grinder, No. 16 Blanchard, 30" ck.		
Lathes, all sizes.		
Pipe machine, 6" Jarecki, mtr. dr.		

### FOR SALE BY

**Frank Toomey, Inc., 127-131 N. Third St., Philadelphia, Pa.**

#### Machine Tools.

#### LATHES.

42" Pond car wheel, motor dr., used.	16"x8" Sidney, d. b. g., q. c., new.
36"x16" Sidney, d. b. g., q. c., new.	16"x 8" Monarch, d. b. g., q. c., used.
21"x10" LeBlond, d. b. g., q. c., used.	13"x 5' 6" Carroll, s. b. g., p. c., new.
17" & 15" Sidney, d. b. g., q. c., new.	9"x36" Johnson, bench, new.

#### SHAPERS AND PLANERS.

7" Rhodes shaper, new.	36"x36"x10" Cincinnati planer, 3 heads, motor, used.
14", 16", 20", 24" Steptoe shapers, new.	30"x30"x8" Whitcomb, 1 hd., used.
20" Cincinnati b. g., used shaper.	24"x24"x8" Hendey planer, 1 head.
36"x36"x14" Ohio planer, 4 heads, belt driven, used.	24"x24"x6" Pease planer, 1 head.

#### MILLERS.

No. 25 Becker plain, used.	No. 2 Cincinnati universal, used.
No. 4 Brown & Sharpe plain, used.	No. 1 Dow plain, new.

#### DRILLING MACHINES.

42" Standard pl. rad., gr. box, new.	32" Superior, b. g., p. f., new.
36" Hamilton pl. rad. cone dr., used.	24" Prentice, sliding ho., b. g., used.
36" Aurora, b. g., p. f., used.	20" Excelsior and Champion, b. g.
28" Superior, s. h., b. g., p. f., new.	4 spdl. Superior hi-speed, used.

#### MISCELLANEOUS.

Automatics, Acme No. 52 mult., used.	Keyseaters, Nos. 2 & 4 Catlin, used.
Bolt cutter, Lendis 4", used.	Pipe machines, 2", 4", 6" Oster, new.
Bolt cutters, Greenfield, 1 1/2" and 2" new.	Slotter, 10"-12" Dill, used.
Boring mill, 42" Bullard, vert., used.	Turret, Gisholt 21".
Grinder, 10"x36" Norton, pl., used.	Turret, No. 6-A Potter & J., used.
Grinder, 8x30" Modern plain, used.	Turret, Bardons & O. Nos. 1 & 6, w. f.
Grinder, No. 1 Fraser, univ., new.	Turret, Gridley 4-spindle, 2 1/2".

## SECOND-HAND MACHINERY

### FOR SALE BY

**Brown Machinery Co.,**

**2323 N. 9th St., St. Louis, Mo.**

Boring mill, 60" Sellers, 2 heads.  
Drill, 30" Gould & Eberhardt.  
Drill, 30" Prentice.  
Drill, 24" Sibley & Ware.  
Drill, 26-spindle Baush.  
Drills, 4, 5 & 6 spindle Allen.  
Drill, radial, 3' American.  
Drills, Nos. 1 & 3 Barnes hor. radial.  
Gear cutter, 30" Whiton.  
Grinder, aerial, Cincinnati.  
Grinder, surface, 1 LaSalle.  
Grinder, 14" Besly.  
Grinder, No. 2 Oesterlein univ.  
Grinder, Woods No. 24 univ.  
Grinder, drill, W. & M. B. Pt.  
Hammer, 1200 lb. Chambersburg.  
Hammer, 800 lb. Lane, double frame steam.  
Lathes, 14", 16", 20", 26" Walcott, d. b. g., q. c. g.  
Lathe, 18"x 8' Monarch. q. c. g.  
Lathe, 24"x10' Fay & Scott.  
Lathe, 26"x12' 10" Wickes, d. b. g., q. c. g., taper attachment.  
Miller, 3-B Owen, vert. attachment.  
Miller, 1-B Fox horizontal.

Miller, No. 4 Hendey, b. g.  
Miller, No. 7-H Becker.  
Miller, No. 2 American Lincoln.  
Motors, 10, 40, 50 h. p., G. E.  
Planer, 24"x24"x6' Lodge & Davis.  
Planer, 26"x26"x6' Pond.  
Presses, Swaine Nos. 57 & 35.  
Press, No. 5 Bliss Stiles.  
Profilers, two-spindle, Pratt & Whitney, Putnam, Reed-Prentice.  
Punch, No. 20 Excelsior, cap. 4".  
Riveter, air, P-A.  
Roll, plate straightening, No. 9 Hilles & Jones.  
Screw machine, hand, Smith.  
Shaper, 16" Whipp, s. g.  
Shaper, 17" Smith & Mills, s. g.  
Shears, 134 Marshalltown, 4".  
Shear, No. 31 Exc. alligator.  
Shear, 62" Peerless, 14 ga.  
Shear, 52" Niagara, ft. sq.  
Shear, 37" Bertsch, foot gap.  
Stake riveter & punch, No. 3 Hilles & Jones, 8' throat.  
Turret lathe, 24" Wyssong & Miles.  
Turret lathe, 16" Gisholt.  
Turret lathe, No. 3 Wood.

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,**

**1001-3-5 N. Sixth St.,**

**St. Louis, Mo.**

#### LATHES.

11"x 4' Shepard.  
13"x 8' Barnes.  
25"x18' Niles, plain change.  
36"x16' Fitchburg.

26"x10' Bridgeford heavy duty.  
26"x18' Springfield, motor-driven.  
33"x20' Draper.  
54"x16' Putnam.

#### SHAPERS.

16" Smith & Mills.  
32" Walcott.

24" Gould & Eberhardt.  
36" Cincinnati, 8' traveling head.

#### PLANERS.

24"x24"x 6' Gray.  
26"x26"x 6' Cox.

30"x30"x 8' Whitcomb.  
42"x42"x12' New Haven.

#### MILLERS.

No. 14 Brown & Sharpe plain.  
No. 12 Kempsmith plain.  
No. 3 Becker plain.  
No. 4 LeBlond plain.

No. 5 Cincinnati plain.  
No. 3 Kempsmith universal.  
Owen duplex.

#### DRILLING MACHINES.

22" Barnes.  
24" Aurora.  
40" Aurora.

4' Mueller radial.  
6' Prentice plain.  
Pawling & Harnischfeger horiz.

#### MISCELLANEOUS.

Bolt cutter, 24" Standard.  
Bulldozer, hydraulic, 75 ton Louie.  
Cold saw, No. 12 Higley.  
Cold saw, 26" No. 2 Bryant.  
Grinder, 5"x18" Ott.  
Grinder, 8"x30" Modern.  
Grinder, No. 1 Brown & Sharpe univ.  
Grinder, 8"x18" Ott univ.  
Hammer, steam, 1000 lb.  
Marking machine, Mathews.

Motors: 3, 10, 15, 20 & 50 h. p., d. c.  
Motors: 5, 10, 15, 20 & 30 h. p., 3 phase, 60 cycle.  
Pumps, a large assortment.  
Punch, No. 15 Williams-White.  
Screw machine, 14" Foster.  
Screw machine, No. 4 Wood.  
Slotter, 36" Niles.  
Slotter, 48" Betts.  
Tapper, No. 2 Garvin.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Botwinik Brothers,**

**21 Sylvan Ave., New Haven, Conn.**

Drill presses, Allen, single spindle, ball bearing, each ..... \$ 135.  
Lathes, Hendey, q. c. geared, yoke head, taper attachments, each, ..... 800.  
Millers, universal, Brown & Sharpe, Garvin, complete, each ..... 750.  
Planers, Rowland 20"x20"x5', single head, metal working, each ..... 200.  
Shapers, Stockbridge 16" crank, complete, brand new, each ..... 550.

### FOR SALE BY

**Brownell Machinery Co.,**

**11-13 Eddy St., Providence, R. I.**

Boring mill, No. 1 Beaman & Smith.  
Boring mill, No. 1 Cleveland.  
Drill, 4-spindle Reed-Prentice.  
Drill, 5' American univ. radial.  
Drill, 26" Henry & W. sens. radial.  
Gear shaper, No. 612 Fellows.  
Grinder, 20" Diamond wet tool.  
Hammer, 40 lb. Bradley cush. helve.  
Hammer, 50 lb. Bradley upright hlv.  
Lathe, 10"x 4' Reed.  
Lathe, 28"x14' Maine.  
Lathe, 30"x12' Putnam.  
Milling mche., No. 6 Whitney hd.  
Milling mch., 16" Briggs high duty.  
Milling machine, No. 1B Kearney &  
Trecker, with vertical, univ. and  
slotting attachments.

Milling mch., No. 2 B. & S. univ.  
Pipe machine, No. 304-A Oster.  
Planer, 17"x17"x4' Whitcomb.  
Planer, 22"x22"x5' Whitcomb.  
Planer, 30"x30"x8' Whitcomb.  
Planer, 36"x36"x13' Betts.  
Planer, 72"x72"x12' Pond.  
Screw machines, No. 00, OG and  
No. 2 B. & S. automatics.  
Screw machines, 14" Cleveland  
Model A automatic.  
Screw machine, 24" Davis, chucking.  
Swaging machines, No. 2 Standard.  
Swaging machine, No. 3 Langelier.  
Wire coiler, No. 2 Standard.  
Wire bull block, No. 11 Standard.

### FOR SALE BY

**Jones Machine Tool Co.,**

**435 E. Pearl St., Cincinnati, Ohio**

#### ENGINE LATHES.

14"x 6' Bradford, q. c.  
16"x 8' Bradford, q. c.  
18"x 8' Walcott, q. c.  
20"x 8' Boye & Emmes, q. c.  
20"x10' United States, q. c.

22"x12' United States, q. c.  
24"x12' LeBlond, q. c.  
30"x16' Prentice, l. c.  
42"x18' New Haven, l. c.

#### DRILL PRESSES.

22" Prentice, p. f.  
24" Aurora, b. g., s. h.  
24" Aurora, s. h., taper attach.

24" Prentice, s. h., taper attach.  
24" Weigel, all gear drive.  
28" Superior, s. h., b. g.

#### SHAPERS.

14" Steptoe crank.  
15" Juengst crank.  
16" Smith & Mills crank.

18" Barker crank.  
24" Steptoe crank.

#### MILLING MACHINES.

No. 1 Toledo hand miller.  
No. 1 1/2 B. & S. universal.  
No. 3 B. & S. plain, s. p. drive.

No. 3 Milwaukee, plain, s. p. drive.  
No. 4 Cincinnati, plain.  
No. 1 1/2 Knight vertical miller.

#### MISCELLANEOUS.

Automatics, Cleveland, 24" cap.  
Bolt cutter, 1 1/2" Acme, single head.  
Die filer, P-4 Oliver.  
Gear cutters, 26" & 36" B. & S.  
Grinder, No. 60 Heald.  
Hammers, board drop, 800 to 2000 lb.  
Planers, 24", 36" & 48".  
Press, rack & pinion, No. 857 Toledo.

Presses, P-2 & P-3 Ferracute, No. 5  
Toledo, No. 74 1/2 Bliss.  
Punch, No. 6 Beatty, 48" throat.  
Square shear, No. 411-G Toledo,  
97" blade.  
Square sh., No. 848 Niagara, 10 ga.  
Square shear, 96" foot power, 20 ga.  
Turret lathes.

Let us know your wants.

We can supply you.

## SECOND-HAND MACHINERY

### FOR SALE BY

**A. D. White Machinery Co., • 108-114 N. Jefferson St., Chicago**

#### ENGINE LATHES.

14"x 6' Smurr & Kamen.	20"x 8' Reed, motor driven.
18"x 7' Chard, d. b. g., p. c.	22"x10' Davis, d. b. g., q. c.
18"x 9' Bell, d. b. g., p. c.	32"x10' Pond, s. b. g., p. c.
20"x 8' Hamilton, d. b. g., s. q. c.	34"x10' Putnam, s. p. g., p. c.
20"x 8' Lodge & Shipley, grd. hd.	38"x14' Fifield, s. b. g., p. c.
20"x 8' Reed, s. b. g., p. c.	

#### MILLING MACHINES.

No. 0 Rockford, plain.	Model AB Becker, vert., motor dr.
No. 25 Becker, horizontal.	Type "A" Briggs (2).
No. 1 Newton slab.	

#### DRILL PRESSES.

20" Mechanics, friction.	2 spindle Guarantee, h. s., b. b.
26" Barnes, sliding head.	4 spindle Reed sensitive, 1/2" cap.
28" Barnes, sliding head.	24" No. 24 Foote-Burt heavy duty.
36" Aurora, sliding head.	2 spindle 24" Barnes, all grd. gang.

#### PUNCH PRESSES.

No. 0 American Can.	No. 4 Rockford, o. b. i. (3).
No. 8 & No. 11 Bliss auto. button presses.	New Swaine o. b. i. presses Nos. 27, 29, 31, 33, 35 and 37.

#### TURRET LATHES AND SCREW MACHINES.

No. 3 Foster, plain head.	No. 3 Stecher, hand, (4).
20"x5' Bridgeport, (2).	16"x5' Dreses Fox.
20"x8' Fay & Scott universal.	18"x6' American Fox.
22"x5' Reed.	18"x6' Springfield Fox.
21" and 24" Gisholts.	7/16" Cleveland, ratchet feed.
3x36" Jones & Lamson.	1" Cleveland, semi-auto.
14"x16" Milholland.	1" Cleveland, friction.
14" Biggs (2).	1" Cleveland, jigger.
No. 1 Garvin, hand, (4).	1" Hartford, (2).
No. 1 B. & S. auto 1/2" (2).	1" Cleveland, jigger.

#### BOLT CUTTERS AND PIPE MACHINES.

14" Acme, double head.	4" Saunders (2).
34" Acme single head, (2).	8" Eaton, Cole & Burnham.
4' Acme single head.	

#### MISCELLANEOUS.

Blower, No. 7 Sturtevant, high press.	Grinder, Springfield, 2-wheel wet.
Boring mch., 24" bar, Binsse horiz.	Grinder, Leland & F., wet.
Gang splitter, takes 21" sheets.	Keyseater, No. 2 Mitts & Merrill.
Gang splitter, takes 28 1/2" sheet.	Planer, 30"x30"x10' Pond, 1 head.
Gas engine, 35 h. p. Columbus.	Profiler, 2 spindle Putnam.
Gas engine, 55 h. p. Bruce-McBeth.	Riveter, 1/2" Shuster.
Grinders, No. 2 Woods tool & cutter	Saw, No. 5 1/2" Nutter-Barnes.
Grinder, No. 2 Oesterlein tool & cut.	Screw slotter, Garvin hor. 3/16 to 1/4".
Grinder, 12x32 Landis plain.	Tapper, No. 2 Garvin, auto.

## HOW

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# Liquidation Sale

## By Order Of Court

### BORING MILLS

- |   |  |
|---|--|
| 76" Betts, heavy modern.                    | 3" Betts, Horizontal, knee type.                   |
| 60" Bickford, standard, 2 heads, low price. | No. 31 Rochester, horiz., floor type, motor drive. |
| 8-24" Bullard Vertical Turret.              | 36" Bullard vert. turret.                          |

### DRILLS

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| 8' Niles Plain Radial.              | 3 and 4 spindle Barnes gang.          |
| 6' Bickford, Semi-Universal Radial. | 2 spindle Foote-Burt. hvy. rail type. |
| 4' Gang, gear box drive.            | 6 spindle Rockford, automatic feed.   |
| 6 spindle Baush, 1" capacity.       | 6 spindle Allen sensitive.            |
| 28" Aurora upright.                 |                                       |

### LATHES

- |  |  |
|--|--|
| 60"x20' Fifeild, D. C. motor drive.                  | 28"x14' Fitchburg, 3 s. c., d. b. g.                             |
| 38"x30' New Haven, 23' centers, 5 s. c., belt drive. | 20"x 8' Lodge & Shipley.   |
| 36"x14' Putnam triple geared.                        | Six J. B. Morris 18"x8' qk. change, 3 s. c., d. b. g., like new. |
| 36"x21' Pond, double head.                           | 12"x5' P. & W.   |

### MILLING MACHINES

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| 8-No. 5C Becker Verticals, new.  | No. 25 Becker Plain.                 |
| No. 3 LeBlond, plain, high duty. | No. 2 Hendey Norton Plain.           |
| No. 2 Kempsmith Universal.       | No. 14 Hendey Norton Universal.      |
| 50"x8' Ingersoll Slab.           | Garvin No. 15 Vertical, planer type. |

### PLANERS

- |  |  |
|--|--|
| 84"x84"x13' Sellers, 3 hds., belt dr.  | 42"x42"x12' Pond Machine Tool Co., 2 heads, belt driven. |
| 48"x48"x14' Powell, 4 heads, reversible motor drive, complete with electrical equipment. | 36"x36"x12' Niles-Bement-Pond, 3 heads.                  |
| 48"x48"x16' Bement-Miles, 4 heads, belt driven.  | 30"x30"x10' Flather, 2 heads, belt driven.               |

### PRESSES

- |                               |   |
|-------------------------------|---|
| No. 55 Adriance S. A.         | No. 1 Farrel, straight side, 8" stroke. |
| No. 512 Bliss, triple action. |   |

### SHAPERS

- |                                     |  |
|-------------------------------------|--|
| 4-15" Hendey, box table and vise.   | 15" Smith & Mills, box table and vise. |
| 3-48" Morton, extra hvy., draw-cut. |  |

### MISCELLANEOUS

- |  |   |
|--|---|
| 10' Bement Boiler Plate Rolls.                     | Grinder, No. 2 Bath Universal.                            |
| 12" New Haven Slotter.                             | Shaper, 18" Ohio, back geared.                            |
| No. 126 Buffalo Slitting Shear (new).              | Turret Lathe, Greenlee flat turret lathe, fine condition. |
| 10" Newton Slotter (new).                          | Slotter, Dill 15-18, new, in crate.                       |
| 8" Curtis & Curtis pipe machine, with dies, etc.   | Betts slotter, 14" to 29" table, 20" gap, fine.           |
| Drill, 24" Barnes Drill Co., all geared, like new. |   |

## Graves Machinery Exchange

OFFICE-WAREHOUSE and Machine Shop, Johnson Ave.  
and Monitor St., Jersey City, N. J.

# Back to Lower Prices

WE CONVERT ANY NEW OR USED CONE DRIVEN TOOL INTO AN ALL-GEARED MOTOR DRIVE QUICKLY AT REASONABLE COST. FULL DETAILS AND PRICE ON REQUEST.

## LATHES

9" to 13" Barnes, h. s., cp. r., new.  
10"x 5' Summit, nearly new (2).  
13-15-16 and 18 O. & S., h. s., c. r., new.  
16"x 6' Monarch, dbl. bk. gr.  
16"x 8' Columbus, new.

18"x 8' Monarch, q. c., d. b. g.  
24"x 12' Fay & Scott.  
25"x 14' Schumacher & Boye.  
30"x 12' L. & S., sgl. p. dr. grd. hd. new.  
8"x 60" Fitchburg Lo-Swing.  
2x24 & 3x36 J. & L., dbl. equipment.  
No. 2 Warner & Swasey hol. hex.  
Nos. 52 and 56 National Acme.

## TURRET LATHES and SCREW MACHINES

24" Steinle, 6 1/2" hol. spdl., grd. hd.  
1 1/2" Tilted turret hand screw mche.  
1" and 1 1/2" Mulholland.

## SHAPERS

14" Niles, traveling head.  
14" Smith & Mills, crank.  
16" Barker, back geared crank.

24" Walcott, geared.  
20" Smith & Mills, geared.  
16" Springfield, crank, back grd.

## PLANERS

24x24x 6' Gray.  
24x24x 6' Pease.  
36"x 36"x 12' Niles.  
44x44x 12' Pond, 4 heads.  
48x48x 16' Bement-Miles, 2 heads.

54x54x 16' Sellers, 4 heads.  
60x60x 17' Betts, 2 heads.  
60x60x 20' Sellers, 4 heads.  
66x66x 20' New Haven, 2 heads.  
84x84x 32' Putnam, 4 heads.

## PRESSES

No. 18 Bliss, open back inclinable.  
No. 35 Niagara, Stiles type, (2).

3-A, 4-A, 5-A and 6-A Willard.  
Em. bench, for radio parts.

## DRILLS and RADIALS

Henry & Wright sgl. spdl., high spd.  
3 1/2' Canedy-Otto plain, new.  
Sensitive 1, 2, 3, 4 and 6 spindle.

4" Avey high speed bench, (5).  
24", 26", 28" and 32", sliding head.  
3' Morris plain, gear box drive.

**Six new standard makes 20" Drills, each \$111.50  
Motors, 1 to 50 H. P., 3 ph., 220 v., G. E., New**

## MILLING MACHINES

No. 25 Becker plain, (3).  
Ames, Lincoln type, 10"x 40" table.  
No. 1 Kempsmith universal.  
No. 3 Brainard, 30x7 table.

No. 1 1/2 B. & S. plain.  
No. 2 H Brown & Sharpe plain.  
Briggs type "A" high duty, 24x8 table.  
No. 32 Kempsmith Lincoln type, (3).

## GRINDERS

Nos. 1, 3 & 78 W. & M. surface.  
10x24 Norton plain.  
Capital, internal, practically new.  
No. 2 W. & P. 10x30 universal.

12x36 Cincinnati universal.  
36" and 66" Yates plate.  
6x32 Norton, plain.  
12x48 Landis, plain.

## MISCELLANEOUS

Band saws, metal, Klemm, (2).  
Bending rolls, 8", for 3" plate.  
Boring mill, 12", 2 swivel heads.  
Boring mill, Bullard 34" turret hd.  
Cold saw, Burr, 3" capacity.  
Compressors, 9x8 and 12x10, new.  
Gear cutter, Whiton 36"x 9 1/2" face.  
Gear millers, Bilton No. 1, (5).  
Hammers, 40 lb. Bradley, helve, (2).  
Hammer, 150 lb. Standard drop.  
Oil groover, Garvin, nearly new.

Oil separator, Springfield.  
Pipe machines, 2", 4", 6" & 12".  
Polishing and buffing lathes, W. & P.,  
3 ph. motor hd., 1 1/2" spdl., (4).  
Pumps, Gould triplex, 6"x 8" & 7"x 8".  
Punch & shear 1/2 by 1/2, 10" throat.  
Pyrometer, Brown 20000, 2-way.  
Riveter, high speed, 3" capacity.  
Rotary shear, No. 20 Quickwork.  
Shear, 5' Robinson, for 10 gauge.  
Shear, No. 20 Quickwork, 30" throat.

**THE  
OSBORNE & SEXTON  
MACHINERY  
COLUMBUS  
OHIO**

# Grand Rapids Specials

Broaching machine, No. 4 Burr.  
Broaching machine, No. 2 J. N.  
LaPointe.

Compressor, 6x6 Curtis, dbl. cyl.  
Cut-off mch., No. 4 Nutter-B.  
Drill, 20" Barnes, all-gear'd.  
Drill, 6-sp, 14" Rockford gang.  
Grinder, No. 6 Bryant, chuck'g.  
Hack saw, No. 7 Racine.  
Hammer, H. C. Smith auto.  
Lathe, 12" Hendey, tool room.  
Lathe, 9x21½ Sundstrand Mfg.  
Lathe, 9x12 Porter-Cable.  
Lathe, 16x7 Oliver, q. c. g.  
Lathe, 24x10 S. B. & E., stand'd.  
Marking mch., No. 3 Slate.  
Miller, No. 2-H Becker vert.  
Miller, 4" P. & W. spline.

Planer, 30"x30"x8' Pond.  
Press, No. 34 Consolidated, arch.  
Press, No. 164 Consolidated.  
Radial drill, 3' Dreses.  
Radial drill, 3' Fosdick.  
Riveter, ½" Shuster.  
Sand blast, Type A-6 Pangborn.  
Scrap compress, No. 10 Economy standard.  
Screw machine, 2" Cleveland.  
Shear, squaring, 96" Ohl, 16 ga.  
Shear, 10' Bertsch, 11 gauge.  
Turret lathe, 3x36, J. & L.  
Turret lathe, 2x24, J. & L.  
Turret lathe, No. 3 B. & O.  
Turret lathe, No. 5 Foster.  
Turret lathe, 14" Warner & S.  
Wire weaving mch., S. & K.

## McMullen Machinery Company

"Everything in Shop Equipment"

Grand Rapids, Mich.

### MILLING MACHINES—New

- 3—No. 1½ Rockford univ., cone type, cap. 25x7½x18.
- 2—No. 2½ Rockford univ., cone type, cap. 34x9x18.
- 1—No. 2½ Rockford univ., high pwr., grd., sgl. pulley dr., cap 24x9x18.
- 2—No. 1½ American plain and universal, cone type, cap. 25x9x18.
- 1—No. 0 Bickett vertical Mill and Profiler.

### MILLING MACHINES—Used

- 1—No. 1 Cincinnati plain, m. d.
- 1—No. 2 Becker plain, m. d.
- 1—No. 4 Cincinnati univ., m. d.
- 6—No. 22 Kempsmith, Lincoln.
- 6—P. & W. 12" Auto. Mills.
- 1—Ingersoll slab, 20"x20"x8'.
- 1—Nos. 1 & 2 Newton keyseat mills, m. d.
- 3—No. 2½ Fox, power and hand, table 7x27½'.

### MISCELLANEOUS

- 3—16"x8' Sidney Lathes, q. c., d. b. g.
- 1—37" Niles Boring Mill, 2 heads.
- 1—50" Sellers Car Wheel Borer.
- 1—82" Bertsch Multiple Punch.
- 3—Quickwork Rotary Shear, cap. up to 1".
- 2—Hendey Shapers, 15" and 20".
- 2—Thompson Universal Grinders 10x36".
- 12—Gisholts, 12" and 24" Turret Lathes.
- 4—Multiple Drills, 10 to 24 spindles.
- 14—Screw Machines, ½ to 3½" cap.
- 4—Radial Drills, 2½, 4' and 5' plain and universal.
- 5—No. 2 Oakley Universal Grinder, 10x20.
- 1—Used No. 3 Sidney Inclined Press, weight 2600 lbs.
- 1—Used 10x24" Landis Plain Grinder.

Money back if not satisfied. Over 1,000 Machines in stock.

**Wayne Machinery Co., Ft. Wayne, Ind.**

# Selected Tools At Low Prices

## LATHES

54"x21' Pond.  
50"x60' Johnson, ex. hvy. pat.  
50"x30' Johnson, ex. hvy. pat.  
50"x14' American.  
36"x14' Bridgeford, geared head.  
26—48"x24' McCabe Double Spdl.  
26—48"x16' McCabe Double Spdl.  
32"x18' Blaisdell.  
28"x12' Boye & Emmes, qck. chg.  
26"x16' Bradford, motor driven.  
28"x14' Niles-B.-P., quick change.  
26"x10' Bridgeford, quick change.  
24"x12' Schumacher & Boye, q. ch.  
16"x 8' Lodge & Shipley, q. c.  
34"x60' Fitchburg "Lo-Swing".

## TURRET LATHES & SCREW MCHES.

28" swing, Pond, rigid type.  
24" swing, Gisholt, motor driven.  
21" swing, Gisholt, gap.  
21" swing, Gisholt, 3/4" hole.  
3x36" Jones & Lamson, grd. hd.  
2x24" Jones & Lamson, grd. hd.

## BORING MILLS.

10—16' Betts, double head.  
48" "Gisholt," double head.

## PLANERS

84"x60"x30' Pond, 4 hds., motor dr.  
72"x72"x12' Niles-Bement-Pond, 4-heads, motor driven.  
48"x48"x15' Pond, 2 heads.  
48"x48"x14' Sellers, 3 heads.  
42"x36"x12' Gray, 2 heads.  
30"x30"x 6' Cincinnati, 1 hd., latest.

## HORIZONTAL BORING AND DRILLING MCHS.—"Knee Type"

23" bar, Bement Miles.  
48" bar, Niles, 64" swing, power raise to table.  
48" bar, B.-M., 62" sw., pwr. raise.  
48" bar, B.-M., 62" sw., pwr. raise.  
48" bar, Bement, power raise.

## SLOTTERS

24" Niles-Bement-Pond (like new), complete with motor.  
16" Putnam, motor drive.  
14" Sellers.

## BENDING ROLLS

20' Niles Tool Works, drop-end, balance bar type, motor drive, like new.  
10' 2" McCabe drop-end, balance bar type (motor or belt drive).

## RADIAL DRILLS

5' Dreses.  
4' Fosdick, plain.  
4' Carlton, speed box.  
3' Carlton, speedy-sensitive.  
3' Fosdick, plain.  
24' Carlton, speed box.

## GEAR CUTTERS

22" Gleason, bevel gear.  
30" Gould & E., spur and bevel.

## MILLING MACHINES

No. 3B Milwaukee universal.  
No. 5 B. & S. vert., circular attach.  
No. 2 Cincinnati, vertical.  
No. 3 Cin'ti, plain, table 45x12".  
No. 22 Becker Brainerd, tbl. 48x14".  
Newton, 60x12" horizontal.  
No. 5 Hendey, q. c., Mfrs. style.

## PUNCHES AND SHEARS

60", No. 6 Hilles & Jones horizontal, arranged for motor drive.  
50" New McCabe.  
No. 4, 42" Hilles & Jones.  
36" No. 1 Long & Allstatter, dbl. end.

## GRINDERS

Bridgeport, 60x12", takes 36" bet. centers, Plain Roll Grinder.  
Landis, univ., 10" sw. takes 30" cent.  
Iroquois univ., 12" sw., 36" centers.

## SHAPERS

28" Smith & Mills, single pulley drv.  
24" Gould & Eberhardt.  
16" Smith & Mills plain.

## PIPE MACHINES

12" Curtis & Curtis.  
10" Saunders, motor drive.  
4" Jarecki.

## HAMMERS

3000 lb. Erie, steam drop.  
2500 lb. Chambersburg, steam drop.  
1500 lb. Chambersburg, steam drop.  
200 lb. Bradley upright.

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**J. J. McCabe Lathe & Machinery Corp'n**  
ROOMS 1805-10, 149 BROADWAY, NEW YORK

# PLANERS

1—44"x36"x14' "American Tool Works"

1—36"x36"x16' "Flathers"

3—36"x36"x10' "Woodward & Powell"

1—36"x36"x10' "Pond"

Also a large stock of IRONWORKING  
MACHINERY of every description.

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to thousands of the larger tool-using concerns.

# ReMANUFACTURED - (ORIGINATED BY US) - MACHINE TOOLS

REG. U. S. PAT. OFF.

EVERY ReMANUFACTURED MACHINE TOOL in our place represents an unusual BARGAIN. A card will bring our latest GREEN LIST containing 2000 machine tools. We welcome inspection of our plant and our process.

## LATHES.

- 1-45"x24" Pond, triple gd.
- 3-36"x42" LeBlond, q. c. g.
- 15-36"x30" Pittsburgh, q. c. g.
- 1-36"x19" Johnson, triple geared.
- 6-30"x11" American, geared head.
- 15-each 26"x9", 10", 12", 14", 16", 18" and 20" Bridgeford, q. c. g.
- 3-20"x10" Lodge & Shipley, q. c. g.
- 89-20"x 8", 12" & 16" Amer., q. c. g.
- 1-18"x 8" Boye & Emmes, q. c. g.
- 3-18"x 8" Lodge & Shipley, q. c. g.
- 3-18"x 9" Lehmann, q. c. g.
- 7-17"x 6" LeBlond mfg. auto.
- 2-16"x 6" Bradford, q. c. g.
- 1-15"x 6" Sidney, q. c. g.
- 1-14"x 6" Bradford.
- 1-13"x 5" Willard.

## DRILLING MACHINES.

- 1-each 3", 3½", 4" and 6" Western Radials.
- 3-No. 11 Pratt & Whitney mult. sp.
- 2-No. 11 Natco multiple spindle.
- 21-3, 4 & 6 spindle Allen, b. b.
- 1 each 1 & 2 spdl. Henry & Wright.
- 6-20" Barnes plain and b. g.
- 6-20" Rockford plain and b. g.
- 6-22" Barnes, sliding head.
- 4-26" Barnes "Camel Back".
- 1-25" Cincinnati, tapp. att.
- 1-28" Cincinnati.
- 1-34" Barnes.
- 1-36" Cincinnati, tapp. att.
- 1-40" Cincinnati.
- 1-No. 310 Balsen.

## PLANERS.

- 1-96"x72"x20" Bement, 4 heads.
- 1-72"x72"x14" Niles, 4 heads.
- 1-60"x48"x10" Gray, spiral geared.
- 1-36"x36"x10" Beckett.
- 1-30"x30"x10" Woodward & P.
- 1-24"x24"x12" Whitcomb.
- 3-ea. 16", 20" & 24" Walcott, b. g.

## CRANK SHAPERS.

- 1-15" Potter & Johnston.
- 1-16" Queen City.

## VERTICAL BORING MILLS.

- 15-24" Bullard New Era vertical.
- 1-30" Gisholt vertical.
- 1-36" Bullard vertical.
- 1-42" Gisholt vertical.
- 1-37"-44" Colburn vertical.
- 1-48" Colburn vertical.
- 1-60" Bullard vertical.
- 1-72" Betts vertical.
- 1-10" Niles vertical.
- 1-No. 3-A universal horizontal.
- 1-No. 5 Defiance horizontal.
- 3-Foote-Burt horizontal.
- 1-Cleveland horizontal.

## MILLERS.

- 2-No. 1 Brown & Sharpe plain.
- 1-No. 1 Brown & Sharpe univ.
- 1-No. 1½ Cincinnati univ.
- 15-Nos. 2 & 3 Kempsmith plain.
- 2-No. 2A Brown & Sharpe univ.
- 4-No. 4 Cincinnati plain.
- 1-No. 4 Cinti. univ. hi-power.
- 1-No. 3 Brown & Sharpe vert.
- 1-No. 2½B Milwaukee vert.
- 1-No. 5 Becker vert.

## GEAR CUTTERS & HOBBERS.

- 2-18" Gould & Eberhardt.
- 13-No. 1 Farwell.
- 2-Nos. 3-26 & 3-36 B. & S.
- 6-No. 6 Fellows.
- 1-No. 6 12 Fellows.
- 1-36" Gleason bevel.

## TURRET LATHES.

- 1-2½" Foster.
- 2-3x36" Jones & Lamson.
- 1-2" Brown & Sharpe.
- 3-1½" Warner & Swasey.
- 5-1½" Foster No. 3.
- 5-1" Foster No. 2.
- 6-1" Warner & Swasey.
- 8-½" Pratt & Whitney.
- 4-24" Gisholts.

## GRINDERS.

- 46-4"x20" to 20"x96" Landis, Brown & Sharpe, Cincinnati, Modern and Norton plain and universal.

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## HILL, CLARKE & CO. OF CHICAGO

649 W. WASHINGTON BLVD., CHICAGO, ILL.

# "At YOUR Command with Second Hand"

## VERTICAL BORING MILLS

- 120" Niles, 2 swivel heads.
- 80" Niles-Bement-Pond, 2 sw. hds.
- 72" Niles, 2 swivel heads.
- 64" Poole, 2 swivel heads, thread cutting.
- 44" Niles, 1 swivel hd., 1 tur. head.
- 42" Putnam carwheel, hub facing attachment.
- 36" Niles carwheel with crane.
- 32" Rogers, swivel turret head, universal jaws.

## HORIZONTAL BORING MILLS

- Bement cylinder, 8" bar.
- Barrett No. 2 cylinder, 5" bar.
- Beaman & Smith No. 2 floor boring, drill and milling machine, 4" bar.
- Lucas "Precision" boring, drilling and milling machine, 3 1/2" bar.
- Niles boring drilling mche., 4" bar.
- Betts boring drilling mche., 5" bar.
- Bement bor. drilling mche., 3 1/2" bar.
- Newark bor. drilling mche., 3" bar.
- Bement bor. drilling mche., 3" bar.
- Bement bor. drilling mche., 2 1/2" bar.
- Barnes drill'g tap. mch., 2 3/16" bar.
- Underwood type 4 1/2" bar. floor plate 8'x9'.

## LATHES

- 21' triple geared face plate drive Pit Lathe for slotting, facing & boring.
- 60"x30" Fifield, face plate dr., 22" cent.
- 62"x22" Putnam, triple grd., internal face plate drive, 13" centers.
- 62" Pulley, triple grd., face plate dr.
- 36"x20" Putnam, triple geared, face plate drive.
- 30"x12" Niles-Bement-Pond, geared head, heavy duty, quick change.
- 24"x14" Prentice, geared friction head, quick change.
- No. 3 Niles-B.-P. dbl. Axle Lathe.

## NEW DOUBLE LEATHER BELTING

- 5" center stock.....\$.84 per ft.
- 10" center stock.....1.68 per ft.

## PUNCHES, SHEARS, ETC.

- Pels Beam Shear, cap. 15" I beams.
- Lennox Rotary Shear, 30" thr. 1/2" cap.
- Quickwork Rotary Shear, 48" throat, 1/2" capacity.
- Stoll 10" Squaring Shear, No. 16 gauge.
- Stoll 11" Squaring Shear, No. 16 gauge.

## PUNCHES, SHEARS, Etc.—Cont.

- No. 5 Long Allstatter double end Punch & Shear, 1/2" punching cap.
- No. 121 Toledo Boiler Maker Punching & Riveting Machine.
- Long & Allstatter Hor. Punch, capacity 1 1/2" to 1"
- Rock River Bulldozer, cross head 16"x86", stroke 20"
- No. 2 Williams & White Cold Bending & Straightening machine.
- No. 6 Beatty S. E., Punch, 25" Throat, double gap.
- No. 7 Beatty S. E. Punch 15" throat.
- 2" Acme Forging Machine.
- 1" Acme Hot Nut Punching Mche.

## PRESSES

- No. 4 A Bliss, adjustable bed, 4" stroke, weight 5800 lbs.
- DG 5 Ferracute geared, 3" stroke weight 8700 lbs.
- No. 60 1/2 Bliss, rack and pinion reducing, adjustable stroke 4" to 42", weight 12,500 lbs. (3).
- No. 666 Toledo knuckle joint, 2 1/2" stroke, 1000 tons pressure, weight 80,000 lbs. (2).
- No. 837 Toledo rack and pinion reducing, adjustable stroke 5" to 40".
- No. 856 Toledo rack and pinion reducing, adjust. stroke, 5" to 36" (2).
- No. 2 1/2 E. J. Manville double acting, stroke slide 1", stroke plunger 1 1/2".
- E. J. Manville double acting, open bk. grd., st. slide 1 1/2", st. plunger 3".
- No. 10 1/2 V. & O. dbl. acting, stroke slide 1", stroke plunger 1 1/2" (5).
- NEW No. 34 Excelsior 225 ton Hydraulic Tire Applying Press (2).

## PLANERS

- 96"x96"x37' Planer, 4 heads.
- 14' Hilles & Jones Plate Planer.
- 72"x72"x14" Pond, 4 heads.
- 72"x70"x14" Sellers, 3 heads.
- 48"x48"x14" Patch, 4 hds., latest type.
- 42"x42"x14" Pond, 4 heads.
- 32"x36"x20" Woodward Powell, 2 hds.
- 36"x36"x12" Bickett, hvy. duty, 2 hds.
- 36"x36"x12" Bickett, hvy. duty, 1 hd.
- 16"x16"x42" Walter Bros., 1 head.
- Two 28" Newton Plain index cents.

**New York Machinery Exchange**  
**50 Church Street,**  
**NEW YORK**

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Immediate Delivery!

## ENGINE LATHES TRIPLE GEARED SCREW CUTTING

96x37 Fifeild 27' centers  
68x40 Pond 30' centers  
60x40 Fifeild, 30' centers

with carriages on bed, with comp. r., hollow spindles. (2 mchs.) Nearly new.

36x32 Amer. Tool Wks. 25' centers  
with 2 carriages on bed, comp. rests.

## TURRET LATHES

Gisholt 24" sw. with 4-way turret tool post on carriage, tilted hex. turret on bed with power rapid traverse —taper att., triple grd., pan bed pump—6 1/2" hole in spindle (10 machines) latest model.

21" swing same, 3 1/2" hole in spdl. (2).  
Pond 28" sw. same, 4 1/2" hole in spdl.  
Steinle 24" sw. same, 6 1/2" hole in sp.

## DRILL PRESSES

Meyers 10" Swing Bench Sensitive.  
Champion 20" Swing Stationary Head Square.

Base Wheel and Lever and Power Feed Back Geared.

Colburn 25" Swing (No. D-4) Heavy Duty, High Speed, Single Pulley Drive, Compound Table.

Footte-Burt Vert. 2-spdl. adjustable Heavy Model, 3" cap., also adapted for cylinder boring.

Footte-Burt Vert. 4-spdl.—same.  
Bickford Pl. Radial, tap. att., 5' arm.

## MILLING MACHINES

Ingersoll 24"x24"x12" Table Horizontal Slab Milling Machines with INCLINED ADJUSTABLE RAIL—(Brand New) (6 machines) —Weight about 25,000 lbs.

HENDEY No. 24 Milling Machines Table 11"x30" (Automatic Feed 20") 20 Machines.

HENDEY No. 4 Milling Machines Table 9"x24" (Automatic Fd. 20") 250 Machines.

## VERTICAL MILLING MACHINES

BECKER No. 6 Latest Improved Model Single Pulley Drive (All geared Speeds) Table 61"x18" (Automatic Feeds 62x20x20").

BECKER No. 5 C Latest Improved Model Single Pulley Drive (All Geared Speeds) Table 56x14" (Auto. Fds.) 54x16x14" 2 Machines

NEWTON No. 1 with Automatic

have power angular feed, quick change, nearly new. (3 Machines).

36x32 LeBlond 25' centers  
with 2 carriages on bed, comp. rests, taper attachment, qk. change. Nearly new. (2 machines).

## PLANERS—SHAPERS—SLOTTERS

Blaisdell 12" stroke Crank Shaper, Planer type.

Putnam Vertical Crank Slotter, 10" stroke.

Betts Vertical Crank Slotter, 16" stroke.

Niles Vertical Crank Slotter, 16" stroke.

Niles Vert. Crank Slotter, 2" stroke.

Barnes 42" Sliding Hd., Back Grd., Power Feed, (all geared feeds).

Pratt & Whitney 6 spindle adjustable Table 3" cap.

Bausch 8-sp. Mult., Circular Hd., 20" dia., will drill to the center of a 40" dia. circle.

Kerr & Murray Plain Radial 4' arm for boiler and structural shop and rough work.

Niles-Bement-Pond Co. Pl. Radial 6' arm with tapping attachment.

BECKER No. 7 H. Milling Machines, Table 9"x29", (Automatic Feed 20") 250 Machines.

PEDRICK & AYER No. 3 Univ. Milling Mchs. (Automatic Feeds 34"x10"x15"). Table 52"x14".

Whitney No. 6 Hand Milling Mchs. Table 20"x4" (Feeds 16"x6"x13") 10 Machines.

SMITH No. 6 Hand. Table 20"x4" (Feeds 16"x6"x13") 20 Machines.

Revolving Rotary Table 22" dia. (Auto. Fds. 20"x12"x12") Swings work 33" dia.

BECKER No. 5 Table 48"x13" (Auto. Feeds 40"x15"x12").

BROWN & SHARPE No. 3 Table 60"x16" (Auto. Fds. 34"x16"x14").

GARVIN No. 22 Table 40"x9" (Feeds 24"x8"x16").

Write for a free copy of Bulletin No. 205 describing our complete stocks of Machine Tools.

# "SIMMONS"

## MILLERS

- 1—No. 1½-B Milwaukee Vertical.
- 1—No. 3 Cincinnati Hi-Pwr. Vert.
- 1—No. 5 Brown & Sharpe Vertical.
- 1—No. 1-B Hendey Universal Miller.
- 1—No. 1½ Cincinnati Univ. Miller.
- 1—No. 2 Cin'ti High Power Univ.
- 1—No. 3 Cin'ti High Power Univ.
- 1—No. 4 Cin'ti High Power Univ.
- 3—No. 2 Kempamith Plain Millers.
- 3—No. 2 Cincinnati High Power Pl.
- 6—No. 2 Rockford Heavy Duty Pl.
- 1—No. 3 LeBlonde Heavy Duty Pl.
- 2—No. 3-B Brown & Sharpe Heavy Duty Plain.
- 1—No. 5 Brown & S. Plain Miller.
- 5—18" Cincinnati Plain Millers.

## PLANERS

- 2—New 60" Newton rotary planers.
- 1—60"x60"x20' Woodward-Powell, 4 heads, 35 h. p.
- 1—48"x48"x20' Ridgeway High-duty, 4 heads.
- 1—New 48"x48"x28' Cincinnati, 2 hds.
- 1—New 42"x42"x12' Openside Simmons planer.
- 1—36"x36"x20' Woodward-P., 4 hds.
- 1—32"x32"x 8' Powell, 1 head.
- 1—30"x30"x8' Cincinnati, 2 heads.
- 1—24"x24"x 8' Woodward-P., 1 hd.
- 1—24"x24"x 8' Cincinnati.

## DRILLING MACHINES

- 2—6' Reed-Prentice pl. radial drill.
- 1—8' Baush plain radial drill.
- 1—New 4' Hammond radial drill.
- 1—4' Prentice plain radial.
- 1—New No. 13 Natco mult. spindle drill.
- 3—No. 310 Baker heavy duty drills.
- 1—32" Prentice sliding head drill.
- 1—24" Cincinnati sliding head drill.

## LATHES

- 1—28"x24' Putnam, comp., taper.
- 4—30"x12' American high duty, grd. head, motor drive.
- 1—30"x35' Niles-Bement-Pond lathe.
- 1—36"x14' Putnam all geared head.
- 4—New 36"x34' Bridgeford geared head, OCG 1.
- 1—42"x28' Niles-Bement-Pond.
- 4—New 48"x29' Niles-Bement-Pond motor drive.
- 3—New 60"x29-56' Niles - Bement-Pond motor drive.

## BORING MILLS

- 1—24" Bullard New Era vert. mill.
- 1—34" Bertram vertical turret head.
- 1—36" Bullard New Era vertical, cutting lub. system.
- 1—42" Bullard New Era type vertical mill.
- 1—10' Betts vertical mill, 15 h. p. variable speed motor.
- 1—12' Bement extra heavy boring-turning, two swivel heads.

## MISCELLANEOUS

- 3—No. 3 Brown & Sharpe Automatic Gear Cutters.
- 3—Nos. 2, 3 & 4 LaPointe Broaching Machines.
- 2—No. 2 Brown & Sharpe Auto.
- 2—No. 0 Brown & Sharpe Auto.
- 6—24" Aurora Sliding Head Drills.
- 8—20" Barnes Self-Oiling Drills.
- 4—22" Barnes Self-Oiling Drills.
- 1—10" Cox Pipe Machine.
- 8—No. 4 Warner-Swasey Screw Machines, p. f.
- 8—No. 6 Warner-Swasey Screw Machines, p. f.

# Simmons Machine Co., Inc.

Albany, New York

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New Britain Machine Co., New Britain, Conn.

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Anderson Bros. Mfg. Co., Rockford, Ill.

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Abbott Ball Co., Hartford, Conn.

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Abbott Ball Co., Hartford, Conn.

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Abbott Ball Co., Hartford, Conn.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

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Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Boring Bars

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Boring Bars, Cylinder

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

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Heaman & Smith Co., Providence, R. I.  
Simmons Machine Co., Albany, N. Y.

## Boring Machines, Horizontal

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Whitney Mfg. Co., Hartford, Conn.

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National Acme Co., Cleveland

## Chucking Machines

New Britain Mch. Co., New Britain, Conn.

## Chucks, Centering

McCrosky Tool Corporation, Meadville, Pa.

## Chucks, Drill

Jacobs Mfg. Co., Hartford, Conn.  
McCrosky Tool Corporation, Meadville, Pa.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

## Chucks, Drill and Tap

McCrosky Tool Corporation, Meadville, Pa.  
Peter Bros. Mfg. Co., Algonquin, Ill.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

## Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

## Chucks, Magnetic

Heald Machine Co., Worcester, Mass.

## Chucks, Wrenchless

Thomas Elevator Co., 31 S. Hoyne Ave.,  
Chicago

## Cold Saws

Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Peter Bros. Mfg. Co., Algonquin, Ill.

## Collets, Lathe and Screw Machine

Morrison Machine Products, Inc.,  
Rochester, N. Y.

## Couplings, Flexible

Cooper Flexible Transmission Co., Inc.,  
Brooklyn

## Cranes, Portable

Canedy-Utt Mfg. Co., Chicago Heights, Ill.  
Canton Foundry & Mch. Co., Canton, Ohio

## Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Cranks, Ball

Cincinnati Ball Crank Co., Cincinnati, O.

## Cutters, Adjustable

McCrosky Tool Corporation, Meadville, Pa.

## Cutters, Keyseating

Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Whitney Mfg. Co., Hartford, Conn.

## Cutters, Milling

Whitney Mfg. Co., Hartford, Conn.

## Cutting-Off Machines

Etna Mfg. Co., Toledo, Ohio  
Peter Bros. Mfg. Co., Algonquin, Ill.

## Cylinder Boring Machines, Portable

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Cylinder Grinders

Schmidt Co., B. L., Davenport, Iowa

## Cylinder or Dome Facing Machines

Underwood Corp., H. B., Philadelphia

# Classified Finding Index

## Detectors

Bennett Metal Treating Co., Elmwood, Conn.

## Die Heads, Self-Opening

National Acme Company, Cleveland

## Dies, Pipe Threading

Hignall & Keeler Mch. Wks., Edwardsville, Ill.

## Dies, Screw and Thread Cutting

Greenfield Tap & Die Corp., Greenfield, Mass.  
National Acme Company, Cleveland

## Dies, Self-Opening Adjustable

Greenfield Tap & Die Corp., Greenfield, Mass.  
Rickert-Shafer Co., Erie, Pa.

## Drilling Machine Heads

Nelson-Rhanch Mfg. Co., Detroit, Mich.  
United States Drill Head Co., Cincinnati

## Drilling Machines, Bench

Avey Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Reed Co., Francis, Worcester, Mass.  
Taylor & Fenn Co., Hartford, Conn.

## Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati  
National Acme Company, Cleveland  
Reed Co., Francis, Worcester, Mass.  
Taylor & Fenn Co., Hartford, Conn.

## Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Mueller Machine Tool Co., Cincinnati

## Drilling Machines, Radial

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Mueller Machine Tool Co., Cincinnati  
Taylor & Fenn Co., Hartford, Conn.

## Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Reed Co., Francis, Worcester, Mass.  
Taylor & Fenn Co., Hartford, Conn.  
U. S. Machine Tool Co., Cincinnati, O.  
Wisconsin Electric Co., Racine, Wis.

## Drilling, Milling and Boring Machines, Vertical

Aurora Tool Works, Aurora, Ind.

## Drilling Machines, Vertical

Aurora Tool Works, Aurora, Ind.  
Avey Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Hinckley Machine Works, Hinckley, Ill.  
Taylor & Fenn Co., Hartford, Conn.

## Drilling and Tapping Attachments

Aurora Tool Works, Aurora, Ind.  
Barnes Co., W. F. & John, Rockford, Ill.  
McCroskey Tool Corporation, Meadville, Pa.  
Reed Co., Francis, Worcester, Mass.

## Drills, Portable Electric

Hisey-Wolf Machine Co., Cincinnati  
Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Wisconsin Electric Co., Racine, Wis.

## Dust Handling Equipment

Klicker-Buckner Co., Jackson, Mich.

## Emery Stands

Hount Co., J. G., Everett, Mass.  
Marschke Mfg. Co., Inc., Indianapolis, Ind.

## Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.

## Facing Heads, Automatic

Mummert-Dixon Co., Hanover, Pa.

## Feed, Automatic Push or Pull For Power Presses

Walsh Press & Die Co., 4709 W. Kinzie St.,  
Chicago

## Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

## Filing Machines

Johnson & Biddle Tool Co., Elkhart, Ind.

## Filing and Sawing Machines

Johnson & Biddle Tool Co., Elkhart, Ind.

## Forges

Canedy-Otto Mfg. Co., Chicago Heights, Ill.

## Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

## Furnaces

Bennett Metal Treating Co., Elmwood, Conn.

## Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.

## Grinding Machines, Bench

Hount Co., J. G., Everett, Mass.  
Hisey-Wolf Machine Co., Cincinnati

## Grinding Machines, Cutter, Reamer and Tool

Hount Co., J. G., Everett, Mass.  
Manhattan Machine & Tool Works., Grand  
Rapids, Mich.  
Marschke Mfg. Co., Inc., Indianapolis, Ind.  
Mummert-Dixon Co., Hanover, Pa.  
National Acme Co., Cleveland  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

## Grinding Machines, Cylinder

Heald Machine Co., Worcester, Mass.  
Schmidt Co., B. L., Davenport, Iowa  
Whitney & Son, Baxter D., Winchendon, Mass.

## Grinding Machines, Cylindrical

Manhattan Machine & Tool Works., Grand  
Rapids, Mich.  
Schmidt Co., B. L., Davenport, Iowa  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio

## Grinding Machines, Die

Manhattan Machine & Tool Works., Grand  
Rapids, Mich.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

## Grinding Machines, Drill

Wilmarth & Morman Co., Grand Rapids, Mich.

## Grinding Machines, Face

Marschke Mfg. Co., Inc., Indianapolis, Ind.  
Taylor & Fenn Co., Hartford, Conn.

## Grinding Machines, Internal

Greenfield Tap & Die Corp., Greenfield, Mass.  
Heald Machine Co., Worcester, Mass.  
Schmidt Co., B. L., Davenport, Iowa.  
Taylor & Fenn Co., Hartford, Conn.  
Thompson Grinder Co., Springfield, Ohio  
Whitney & Son, Baxter D., Winchendon, Mass.  
Wilmarth & Morman Co., Grand Rapids, Mich.

# Classified Finding Index

**Grinding Machines, Oilstone**  
Mummert-Dixon Co., Hanover, Pa.

**Grinding Machines, Portable**  
Hisey-Wolf Machine Co., Cincinnati  
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago  
Marschke Mfg. Co., Inc., Indianapolis, Ind.  
Mummert-Dixon Co., Hanover, Pa.  
Wisconsin Electric Co., Racine, Wis.

**Grinding Machines, Snagging**  
Manhattan Machine & Tool Works, Grand Rapids, Mich.  
Marschke Mfg. Co., Inc., Indianapolis, Ind.

**Grinding Machines, Surface**  
Heald Machine Co., Worcester, Mass.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

**Grinding Machines, Universal**  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

**Hack Saw Machines**  
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago  
Racine Tool & Machine Co., Racine, Wis.

**Hammers, Air**  
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

**Hammers, Belt & Motor Driven**  
Beaudry & Co., Boston  
United Hammer Co., Boston

**Hammers, Power**  
Beaudry & Co., Boston  
Quickwork Co., St. Marys, Ohio  
United Hammer Co., Boston

**Hammers, Riveting**  
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago  
Quickwork Co., St. Marys, Ohio

**Handles, Machine**  
Cincinnati Ball Crank Co., Cincinnati, O.

**Heads, Dividing**  
Dickow Machinery Co., Fred C., 2105 W. Lake St., Chicago  
Simmons Machine Co., Albany, N. Y.  
Willard-Middletown Machine Co., Cincinnati

**Hoists, Electric**  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

**Hoists, Portable**  
Canton Foundry & Machine Co., Canton, Ohio

**Jigs, Fixtures, Tools, Etc.**  
Hinkley Machine Works, Hinkley, Ill.

**Joints, Ball and Socket**  
Cincinnati Ball Crank Co., Cincinnati, O.

**Joints, Universal**  
Cooper Flexible Transmission Co., Inc., Brooklyn

**Keyseating Machines**  
Rucher-Smith Co., East Liverpool, Ohio  
Chattanooga Mch. Co., Chattanooga, Tenn.  
National Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

**Lathe Accessories and Attachments**  
Fay & Scott, Dexter, Maine  
McCrosky Tool Corporation, Meadville, Pa.  
Simmons Machine Co., Albany, N. Y.

**Lathes, Automatic**  
National Acme Company, Cleveland

**Lathes, Bench**  
Blount Co., J. G., Everett, Mass.

**Lathes, Engine**  
Barnes Co., W. F. & John, Rockford, Ill.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Fay & Scott, Dexter, Maine  
Mueller Machine Tool Co., Cincinnati  
Stephoe Co., John, Cincinnati, O.  
Willard Machine Tool Co., Cincinnati, O.

**Lathes, Foot Power**  
Barnes Co., W. F. & John, Rockford, Ill.

**Lathes, Speed and Hand**  
Blount Co., J. G., Everett, Mass.  
Prybil Machine Co., P., 612 W. 41st, N. Y.

**Lockers, Shelving and Cupboards, Steel**  
Terrell's Equipment Co., Grand Rapids, Mich.

**Mandrels, Expanding**  
Nicholson & Co., W. H., Wilkes-Barre, Pa.

**Mandrels, Solid**  
Nicholson & Co., W. H., Wilkes-Barre, Pa.

**Metal Cutting Machines, Sheet**  
Quickwork Co., St. Marys, Ohio

**Milling Attachments**  
Burke Machine Tool Co., Connecticut, Ohio  
Hinkley Machine Works, Hinkley, Ill.  
Willard-Middletown Machine Co., Cincinnati

**Milling Machines, Bench**  
Burke Machine Tool Co., Connecticut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Simmons Machine Co., Albany, N. Y.

**Milling Machines, Hand**  
Burke Machine Tool Co., Connecticut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Stephoe Co., John, Cincinnati, O.  
U. S. Machine Tool Co., Cincinnati, O.  
Whitney Mfg. Co., Hartford, Conn.

**Milling Machines, Horizontal**  
Reaman & Smith Co., Providence, R. I.  
Stephoe Co., John, Cincinnati, O.

**Milling Machines, Plain**  
Reaman & Smith Co., Providence, R. I.  
Burke Machine Tool Co., Connecticut, Ohio  
Stephoe Co., John, Cincinnati, O.

**Milling Machines, Portable**  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Milling Machines, Universal**  
Stephoe Co., John, Cincinnati, O.

**Milling Machines, Vertical**  
Reaman & Smith Co., Providence, R. I.  
Burke Machine Tool Co., Connecticut, Ohio  
Taylor & Fenn Co., Hartford, Conn.

**Motors, Electric**  
Reliance Electric & Eng. Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

**Oil Cups**  
Gits Bros. Mfg. Co., 1940 S. Kilbourn Av., Chicago  
Tucker, W. C. & F. C., Hartford, Conn.

# Classified Finding Index

## Oil Extractors

Curtis, Albert B., Estate, Worcester, Mass.

## Oil Hole Covers

General Screw Co., Cincinnati, Ohio  
Tucker, W. C. & F. C., Hartford, Conn.

## Pattern Shop Machinery

Towsley Mfg. Co., John T., Cincinnati

## Pipe Bending Machines

Fedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Pipe Cutting and Threading Machines

Bignall & Keeler Mch. Wks., Edwardsville, Ill.  
Simmons Machine Co., Albany, N. Y.

## Piston and Piston Ring Machines

National Acme Company, Cleveland.

## Planer Attachment, Radius

Underwood Corp., H. B., Philadelphia

## Planer Tools, Circular

Underwood Corp., H. B., Philadelphia

## Planers

Ohio Machine Tool Co., Kenton, O.

## Planers, Valve Seat, Portable

Fedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Polishing and Buffing Machines

Blount Co., J. G., Everett, Mass.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Hisey-Wolf Machine Co., Cincinnati  
Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
New Britain Machine Co., New Britain, Conn.  
Wilmarth & Norman Co., Grand Rapids,  
Wisconsin Electric Co., Racine, Wis. (Mich.)

## Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.  
Barnes Co., W. F. & John, Rockford, Ill.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Nicholson & Co., W. H., Wilkes-Barre, Pa.

## Presses, Branching

Atlas Press Co., Kalamazoo, Mich.  
Laurie Mfg. Co., Springfield, Ill.

## Presses, Foot

Atlas Press Co., Kalamazoo, Mich.  
Rockford Iron Works, Rockford, Ill.  
Taylor & Fenn Co., Hartford, Conn.

## Presses, Power

Hendley & Whittmore Co., Beloit, Wis.  
Rockford Iron Works, Rockford, Ill.  
Walsh Press & Die Co., 4709 W. Kinzie St.,  
Chicago  
Willard-Middletown Machine Co., Cincinnati

## Presses, Punch

Lewthwaite Mch. Co., T. H., 417 E. 31st., N. Y.  
Laurie Mfg. Co., Springfield, Ill.  
Rockford Iron Works, Rockford, Ill.

## Presses, Screw

Atlas Press Co., Kalamazoo, Mich.  
Barnes Co., W. F. & John, Rockford, Ill.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.  
Towsley Mfg. Co., John T., Cincinnati

## Pulley Machinery

Avey Drilling Machine Co., Cincinnati

## Pulleys, Iron, Solid and Split

Fryett Foundry Co., 328 N. Sangamon St.,  
Chicago

## Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

## Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago

## Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittmore Co., Beloit, Wis.  
Lewthwaite Mch. Co., T. H., 417 E. 31st St.,  
New York  
Whitney Metal Tool Co., Rockford, Ill.

## Punches, Power

Hendley & Whittmore Co., Beloit, Wis.

## Punches and Dies

Hendley & Whittmore Co., Beloit, Wis.  
Lewthwaite Mch. Co., T. H., 417 E. 31st., N. Y.  
Rockford Iron Works, Rockford, Ill.

## Quenching Baths

Bennett Metal Treating Co., Elmwood, Conn.

## Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.

## Reamers, Adjustable

Greenfield Tap & Die Corp., Greenfield, Mass.  
McCrosky Tool Corporation, Meadville, Pa.  
Schellenbach-Hunt Tool Co., Cincinnati

## Reamers, Cylinder

Hinckley Machine Works, Hinckley, Ill.  
McCrosky Tool Corporation, Meadville, Pa.

## Reamers, Solid

McCrosky Tool Corporation, Meadville, Pa.

## Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati, O.

## Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

## Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittmore Co., Beloit, Wis.  
Lewthwaite Mch. Co., T. H., 417 E. 31st., N. Y.  
Tucker, W. C. & F. C., Hartford, Conn.

## Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

## Screw Driving Machines, Automatic

Reynolds Machine Co., Massillon, Ohio

## Screw Driving Machines, Portable Electric

Hisey-Wolf Machine Co., Cincinnati

## Screw Machines, Automatic

National Acme Company, Cleveland  
New Britain Mch. Co., New Britain, Conn.

## Screw Machines, Auxiliary

National Acme Company, Cleveland

## Screws, Cap and Set

National Acme Company, Cleveland

## Second-Hand Machinery Dealers

Biggs-Watterson Co., Cleveland  
Botwinik Brothers, New Haven, Conn.  
Brown Machinery Co., St. Louis, Mo.  
Brownell Machinery Co., Providence, R. I.  
Easley Machinery Co., E. L., 555 Washington  
Blvd., Chicago  
Graves Mch. Exchange, Jersey City, N. J.  
Harris Bros. Co., W. 35th & Iron, Chicago  
Hill, Clarke & Co., 649 W. Washington  
Blvd., Chicago  
Johnson & Sons Machinery,  
Co., Wm. C.,  
St. Louis, Mo.

# Classified Finding Index

## Second-Hand Mch. Dealers—Cont'd

Jones Machine Tool Co., Cincinnati  
 Little Co., W. P., Cleveland  
 McCabe Lathe & Machinery Corp., J. J.,  
 149 Broadway, New York  
 McDonald Machinery Co., St. Louis  
 McMullen Mch. Co., Grand Rapids, Mich.  
 Molitor Mch. Co., Chas., 118 S. Clinton St.,  
 Chicago  
 New York Mch. Exchange, 50 Church St.,  
 New York  
 Niles-Bement-Pond Co., 111 Broadway, N. Y.  
 Norton Broadway Mch. Co., Cincinnati, O.  
 O'Brien Machinery Co., Philadelphia  
 Osborne & Sexton Mch. Co., Columbus, O.  
 Pattison Supply Co., W. M., Cleveland  
 Prybil Machine Co., P., 512 W. 41st, N. Y.  
 Randle Machinery Co., Cincinnati  
 Reeve-Fritts Co., 37 S. Desplaines, Chicago  
 Reliance Mch. Sales Co., Pittsburgh, Pa.  
 Russell Machine Co., Pittsburgh, Pa.  
 Scott-Bansbach Mch. Co., 32 N. Clinton St.,  
 Chicago  
 Seyfert's Sons Inc., L. F., Philadelphia, Pa.  
 Simmons Machine Co., Albany, N. Y.  
 Stoehr Mch. Co., A. M., 844 N. Wells St.,  
 Chicago  
 Strong, Carlisle & Hammond Co., Cleveland  
 Towner, Inc., Frank, Philadelphia  
 Tubor, Velick & Co., Inc., Lake & Desplaines  
 Sta., Chicago  
 Wayne Mch. Co., Fort Wayne, Ind.  
 Winterer, Herman L., Philadelphia  
 White Mch. Co., A. D., 108 N. Jefferson  
 St., Chicago

## Shafts, Flexible

Haskins Co., R. G., 29 S. Desplaines St.,  
 Chicago  
 Stow Flexible Shaft Co., Philadelphia

## Shafts, Steel

American Hollow Boring Co., Erie, Pa.

## Shaping Machines

Columbia Machine Tool Co., Hamilton, Ohio  
 Hollingworth Mch. Tool Co., Covington, Ky.  
 Ohio Machine Tool Co., Kenton, Ohio  
 Osborne & Sexton Mch. Co., Columbus, O.  
 Simmons Machine Co., Albany, N. Y.  
 Smith & Mills Co., Cincinnati  
 Steptoe Co., John, Cincinnati, O.  
 Universal Machine & Tool Co., Canton, O.

## Shears, Hand

Armstrong-Blum Mfg. Co. 341 N. Francisco  
 Av., Chicago  
 Hendley & Whittemore Co., Beloit, Wis.  
 Kidder Mfg. Co., J. F., Burlington, Vermont  
 Lawthwaite Machine Co., T. H., 417 E. 31st  
 St., New York  
 Quickwork Co., St. Marys, Ohio  
 Tucker, W. C. & F. C., Hartford, Conn.  
 Whitney Metal Tool Co., Rockford, Ill.

## Shears, Power

Hendley & Whittemore Co., Beloit, Wis.  
 Quickwork Co., St. Marys, Ohio

## Sheet Metal Working Machinery

Quickwork Co., St. Marys, Ohio

## Sprockets

Cullman Wheel Co., 1344 Altgeld St., Chicago

## Straightening Machines

Towsley Mfg. Co., John T., Cincinnati  
 Whitney Metal Tool Co., Rockford, Ill.

## Swaging Machines

Etna Mfg. Co., Toledo, Ohio

## Tables, Circular

Hinckley Machine Works, Hinckley, Ill.

## Tap Extractors

Walton Co., Hartford, Conn.

## Tapping Machines and Attachments

Avey Drilling Machine Co., Cincinnati  
 Beaman & Smith Co., Providence, R. I.  
 Burke Machine Tool Co., Conneaut, Ohio  
 Greenfield Tap & Die Corp., Greenfield, Mass.  
 McCroskey Tool Corporation, Meadville, Pa.  
 Rickert-Shafer Co., Erie, Pa.  
 Whitney Mfg. Co., Hartford, Conn.  
 Whitney Metal Tool Co., Rockford, Ill.

## Taps and Dies

National Acme Company, Cleveland

## Threading Machines, Bolt and Stud

National Acme Company, Cleveland

## Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago  
 National Acme Company, Cleveland

## Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago  
 Simmons Economy Tool Corp., Albany, N. Y.

## Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago

## Tools, Box

Biggs, F. H., Cleveland, O.

## Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago

## Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago

## Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.  
 Towsley Mfg. Co., John T., Cincinnati

## Turntables

Canton Foundry & Machine Co., Canton, O.

## Turret Tool Posts

Fay & Scott, Dexter, Maine

## Valve Grinders

Independent Pneumatic Tool Co., 690 W.  
 Jackson Blvd., Chicago

## Valves

Powell Co., Wm., Cincinnati

## Valve Seat Planing Machines, Portable

Underwood Corp., H. B., Philadelphia

## Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco  
 Av., Chicago  
 Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago  
 Carter & Hakes Mch. Co., W. Winsted, Conn.  
 Germanow-Simon Mch. Wks., Rochester, N. Y.  
 Thomas Elevator Co., 31 S. Hoyne Ave.,  
 Chicago

## Vises, Machinists'

New Britain Machine Co., New Britain, Conn.

## Vises, Milling Machine

Carter & Hakes Mch. Co., W. Winsted, Conn.  
 Germanow-Simon Mch. Wks., Rochester, N. Y.

## Vises, Shaper

Columbia Machine Tool Co., Hamilton, Ohio

## Washers, Finished

Cincinnati Ball Crank Co., Cincinnati, O.

## Wood Working Machinery

Hendley & Whittemore Co., Beloit, Wis.  
 New Britain Machine Co., New Britain, Conn.  
 Towsley Mfg. Co., John T., Cincinnati  
 Whitney & Son, Baxter D., Winchendon, Mass.

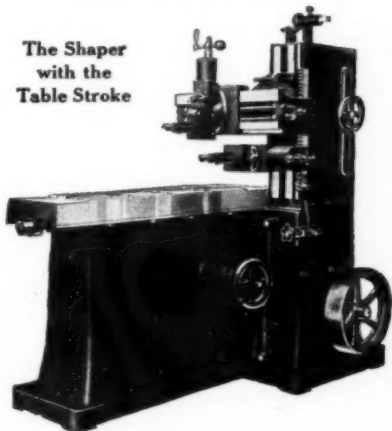
# Index of Advertisers

<b>A</b>		<b>F</b>	
Abbott Ball Co.....	18	Fay & Scott.....	20
Acklin Stamping Company.....	69	<b>G</b>	
American Hollow Boring Co.....	38	General Screw Co.....	61
Anderson Bros. Mfg. Co.....	55	Gits Bros. Mfg. Co.....	61
Armstrong-Blum Mfg. Co.....	49	Grant Mfg. & Machine Co.....	18
Armstrong Bros. Tool Co.....	64	Graves Machinery Exchange.....	82
Atlas Press Co.....	62	Greenfield Tap & Die Corp.....	60
Aurora Tool Works.....	7	<b>H</b>	
Avey Drilling Machine Co.....	9	H & H Machine Co.....	69
<b>B</b>		Hamilton Caster & Mfg. Co.....	30
Barnes Co., W. F. & John.....	15	Harris Brothers Co.....	89
Beaman & Smith Co.....	11	Haskins Co., R. G.....	38
Beaudry & Co.....	67	Heald Machine Co.....	4
Bennett Metal Treating Co.....	67	Hendley & Whittemore Co.....	47
Biggs, P. H.....	65	Hill, Clarke & Co., of Chicago...	87
Biggs-Watterson Co.....	43	Hinchley Machine Works.....	36
Bignall & Keeler Mche. Works...	57	Hisey-Wolf Machine Co.....	50-51
Blount Co., J. G.....	80	Hollingworth Machine Tool Co...	24
Botwinik Brothers.....	79	<b>I</b>	
Brown Machinery Co.....	80	Independent Pneumatic Tool Co.	10
Brownell Machinery Co.....	67	<b>J</b>	
Buchanan Chemical Co., C. G...	40	Jacobs Manufacturing Co.....	6
Bucher-Smith Co.....	8-34	Johnson & Biddle Tool Co.....	52
<b>C</b>		Johnson & Sons Mchy. Co., Wm. C.	79
Canedy-Otto Mfg. Co.....	5	Jones Machine Tool Co.....	80
Canton Foundry & Mche. Co....	36	<b>K</b>	
Carter & Hakes Machine Co....	41	Kidder Mfg. Co., J. F.....	46
Chattanooga Machinery Co.....	58	Knickerbocker Co.....	37
Cincinnati Ball Crank Co.....	54	<b>L</b>	
Cincinnati Specialty Mfg. Co....	26	Lewthwaite Machine Co., T. H.	48
Columbia Machine Tool Co.....	30	Little Co., W. P.....	75
Cooper Flexible Transmission Co., Inc.....	28	Lourie Mfg. Co.....	62
Cullman Wheel Co.....	29	<b>M</b>	
Curtis, Albert B., Estate.....	33	McCabe Lathe & Machinery Corporation, J. J.....	85
<b>D</b>		McCrosky Tool Corporation.....	19
Dickow Mchy. Co., Fred C.....	76	McDonald Machinery Company..	72
<b>E</b>			
Enley Machinery Co., E. L. ....			
Etna Manufacturing Co.....			

# 24" Universal For—

**Faster Shaper Work  
More Accurate Shaper Work  
A Greater Range of Shaper Work**

**The Shaper  
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## Index of Advertisers—Continued

McMullen Machinery Co.....	84
Manhattan Mche. & Tool Works	63
Marchke Mfg. Co., Inc.....	60
Molitor Machinery Co., Chas....	70
Mueller Machine Tool Co.....	22
Mummert-Dixon Co. ....	10

### N

National Acme Company .....	3
National Machine Tool Co.....	42
Nelson-Blanc Mfg. Co.....	12
New Britain Machine Co.....	100
New York Machinery Exchange..	88
Nicholson & Co., W. H.....	40
Niles-Bement-Pond Co.....	73
Norton Broadway Machinery Co.	78

### O

O'Brien Machinery Co.....	76
Ohio Machine Tool Co.....	24
Osborne & Sexton Mchy. Co.....	83

### P

Pattison Supply Co., W. M.....	70
Pedrick Tool & Machine Co.....	23
Peter Bros. Mfg. Co.....	14-54
Powell Co., The Wm.....	66
Prybil Machine Co., P.....	20-74
Pyott Foundry Co.....	29

### Q

Quickwork Co. ....	52
--------------------	----

### R

Racine Tool & Machine Co.....	53
Randle Machinery Co.....	69
Reed Co., Francis .....	12
Reeve-Fritts Company .....	77
Reliance Elect. & Engineering Co.	2
Reliance Machinery Sales Co.....	69
Reynolds Machine Company.....	39
Rickert-Shafer Co.....	17
Rockford Iron Works .....	44
Russell Machine Co.....	71

### S

Schellenbach-Hunt Tool Co.....	64
Schmidt Co., B. L.....	58
Scott-Bansbach Machinery Co....	74
Scully-Jones & Co.....	42
Second-Hand Machinery.....	69 to 90
Seyfert's Sons Inc., L. F.....	86
Simmons Economy Tool Corp'n..	32
Simmons Machine Co., Inc. ....	90
Smith Machinery Co., H. A.....	74
Smith & Mills Co.....	26
Steptoe Company, John.....	22
Stoehr Machinery Co., A. M. ...	78
Strong, Carlisle & Hammond Co.	75

### T

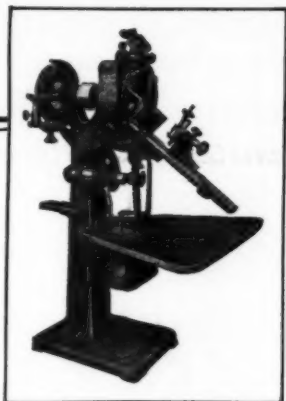
Taylor & Fenn Co.....	35
Terrell's Equipment Co.....	25
Thomas Elevator Co.....	14
Thompson Grinder Co.....	
Toomey, Inc., Frank.....	78
Towsley Mfg. Co., John T.....	27
Tubor, Velick & Co., Inc.....	72
Tucker, W. C. & F. C.....	46

### U

Underwood Corporation, H. B....	68
United Hammer Co.....	48
United States Drill Head Co.....	13
United States Machine Tool Co.	34
Universal Machine & Tool Co....	97

### W

Walsh Press & Die Co.....	45
Walton Co. ....	16
Wayne Machinery Co. ....	84
White Machinery Co., A. D....	81
Whitney Mfg. Co. ....	31
Whitney Metal Tool Co.....	16
Whitney & Son, Baxter D.....	56
Willard Machine Tool Co.....	21
Willard-Middletown Mche. Co.	33-44
Wilmarth & Morman Co. ....	99
Winterer, Herman L.....	77
Wisconsin Electric Co.....	59



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